DECEMBER, 1954

Products finishing

How to Increase Plating Speed. . Page 24
Paint Warmer Aids Finishers. . . Page 32
Preparing Metal for Painting. . Page 36
Plating Prior to Galvanizing. . . Page 44

Finishes on *Metal* Products

this is it!

THE NO. 1 GREASELESS COMPOSITION

for

POLISHING

BUFFING

BURRING

SATIN FINISHING

TOP QUALITY ABRASIVES • GLUES • BLENDING

For thirty years LEA has been THE NAME in the field of clean, efficient and economical finishing of metals, plastics and wood, with LEA COMPOUND leading the way . . . all the way. No products are superior to LEA products anywhere because they're developed by Specialists in Finishing and the best materials are used. The LEA laboratory offers careful analysis of your finishing problem and the RIGHT solution to it.

There's a Lea **COMPOSITION** *for* **EVERY** *surface finishing job.*
Just write us about yours.

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Burring, Buffing, Polishing, Lapping, Plating and Spray Finishing . . . Manufacturers and Specialists in the Development of Production Methods, Equipment and Compositions.

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DECEMBER, 1954

Page No.	Name of Manufacturer	Page No.	Name of Manufacturer

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CO. ADDRESS_____

CITY_____ ZONE____ STATE_____

NAME_____ TITLE_____

Your Monthly Source For Finishing Ideas

Please send additional information on the products shown on the following pages of this issue. (List page numbers and names of manufacturer.)

PRODUCTS FINISHING
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Page No.	Name of Manufacturer	Page No.	Name of Manufacturer

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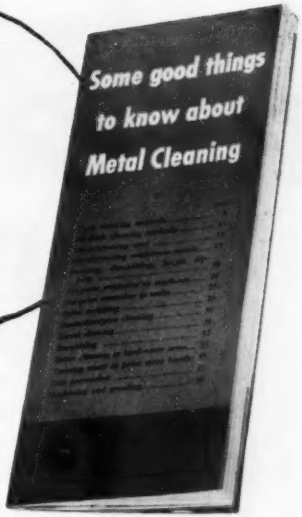
WHICH

METAL-CLEANING JOBS

WOULD YOU LIKE

TO IMPROVE?



Listed below are some of the operations discussed in Oakite's 44-page handsomely illustrated booklet on Metal Cleaning. Please check the list. Then let us show you how Oakite methods can give you better production with greater economy.

SPECIALIZED INDUSTRIAL CLEANING

OAKITE

REG. U.S. PAT. OFF.

MATERIALS • METHODS • SERVICE

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I am particularly interested in improving methods for the following jobs:

- ☐ Tank cleaning
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- ☐ Zinc phosphate coating
- ☐ Paint stripping
- ☐ Steam-detergent cleaning
- ☐ Burnishing, barrel cleaning
- ☐ Rust prevention
- ☐ Send me a FREE copy of your booklet *"Some good things to know about Metal Cleaning".*

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Company _____

Address _____

FILTER OUT your plating troubles!

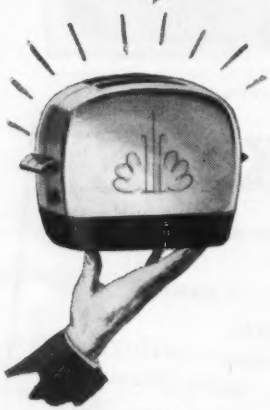
Take good care of your plating solution and you'll get better work out of it; brighter coatings, improved adhesion, less loss of costly anode metal.

Start CLEAN... Stay CLEAN

Baby your bath, by filtering it regularly with Red Label Darco S-51, the activated carbon made especially for electroplaters. Darco is the efficient and economical way to remove trouble-making impurities. It contains no traces of sulphides that can cause dullness, brittleness or poor adhesion.

Be sure to specify Red Label Darco S-51 by name. Get it from your supplier in convenient 10-lb. and 50-lb. packages.

Write for a copy of the article, "Filter Out Your Plating Rejects."



DARCO DEPARTMENT
ATLAS POWDER COMPANY
Darco General Sales Offices
60 East 42nd Street, New York 17, N. Y.
Atlas Powder Company, Canada, Ltd., Brantford, Canada

This is a plain Ruff-L-Buff after wearing off about one inch in testing operations and then trimming. Loose threads, broken material and numerous small holes due to excessive heat and abrasion of the cloth are apparent.

30% LONGER BUFF LIFE

The Binderized Ruff-L-Buff shown here was subjected to the identical test undergone by the untreated buff — yet look at the difference! Notice the absence of thread or cloth breakage of any kind, proof of Binderizing's effect on buff life.

with New H-VW-M Binderized* Ruff-L-Buffs®

Not just "another type of buff", but a revolutionary new H-VW-M process which impregnates the entire Ruff-L-Buff with the same organic binder used in buffing compounds. From these new "Binderized" Ruff-L-Buffs come a host of practical, cost-cutting advantages, proved over many months in actual production line operations.

Item by item, these are the six major advantages of the H-VW-M Binderized Ruff-L-Buff.

- **Longer buff life** – damage from overheating eliminated by pre-lubrication of buffing material, preventing excess frictional heat caused by constant flexing. This additional buff life has averaged 30% in actual test runs.
- **Better compound adherence** – the binderizing impregnation creates an affinity between buff and compound. The compound does the cutting, not the buff.
- **Faster cutting action** – more compound is retained on the buff, insuring an even cut for a longer period without re-application of compound.
- **Extended composition life** – additional binder in the cloth ensures better abrasive adhesion, longer life of both composition and buff.
- **Heading-up time** – new wheels require only application of the compound to be ready for immediate operation.
- **Cooler running** – in addition to pre-lubrication, six holes in the center and twelve air channels in the center rim provide a forced air circulation over all cloth surfaces.**

And, of course, Binderized Ruff-L-Buff retain such important features as *bias-cut cloth* to prevent unravelling, *perfect buff balance* for uniform rotation and wear, and *exclusive Red-E-To-Use face* that takes compound without need for surface preparation.

H-VW-M bias-cut Sisalweev buffing wheels are also available in Binderized types.

* Patent Pending
** Patent No. 2,140,208

For complete information on H-VW-M Binderized Ruff-L-Buffs and other specialized buffs write for Bulletin No. B-102.

PLATEMANSHIP

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing — of a complete equipment, process and supply line for every need.

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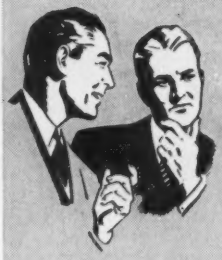

IS THERE A BETTER WAY TO COAT YOUR PRODUCT?

An Egyptian Industrial Finishes Specialist can help you find it.

Egyptian's outstanding reputation for finding "A BETTER WAY" makes your Egyptian Specialist and the ingenious Lab. Technicians behind him "all star selections" for your product planning team.

Their highly specialized knowledge can help make your product look better... wear better... sell better. Often their suggestions have broken seemingly impossible finishing bottlenecks, appreciably cutting overall finishing costs... they can keep you constantly informed of new finishing techniques and how you can benefit by them ... Your Egyptian Specialist can point out the advantages of the dip, spray, roller coat, tumble, hot spray and electrostatic application methods. He can tell you the required specifications for finishing any Government Product.

If there IS a better way..."Egyptian Finishing Know-How" can help you find it. Invite an Egyptian Industrial Finishes Specialist to call on you today.

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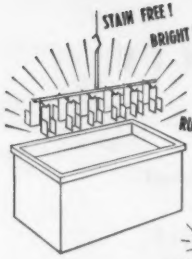
NEW!

Magic Dry

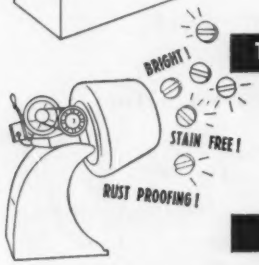
Your answer to *Trouble-Free PLATING*

by Eliminating { STAINING / DULLNESS / RUSTING



PLATING

MAGIC DRY is a remarkable new product that helps eliminate rejects and increases production. In plating, MAGIC DRY is used in the rinse cycle in concentration of 1-2 ozs. for every 10 gallons of water 160° to 180° F. MAGIC DRY will eliminate plating stains and maintain the bright finish of the plated work. It will also provide a rustproofing finish that will be welcomed by the plating industry.



TUMBLING

Four ozs. of MAGIC DRY per gallon of water applied to tumbled parts at room temperature immediately after tumbling retains the bright finish of the tumbled parts and thereby prevents them from rusting or staining.

CLEANING

When one oz. of MAGIC DRY is added to each gallon of Alkali cleaner, many difficult cleaning problems become a matter of routine.

MAGIC DRY is now available in 55 gallon drums or 5 gallon containers.

Send for *FREE* Sample

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Please send me FREE sample of MAGIC DRY.
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Mitchell-Bradford

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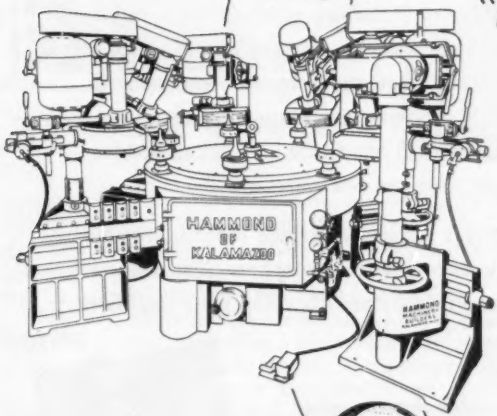
QUALITY PRODUCTS OF CHEMICAL RESEARCH

America looks to . . . Hammond

for

FINISHING and DEBURRING

"KNOW-HOW"



The experience gained in over 70 years of machinery building has provided us with a big bank of "Know How."

This knowledge is drawn upon and added to every day. Our business is to share it with you to bring down high finishing costs. Many users of Hammond Automatics have found more efficient means of finishing by drawing on our bank of "Know How."

The Rotary Automatic illustrated represents one of our many types and sizes of automatic finishing machines for either continuous rotation or indexing. The head and stand units shown are a part of a large "family" which range in type and size up to 20 HP.

SEND SAMPLES and we will show you how much you can speed up production and cut costs.

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A

RHODIUM PLATE

Resists Corrosion

The hard, brilliant white finish of Rhodium plate strongly resists corrosion, making it ideal for electrical and electronic applications. This exceptional property assures protection against atmospheric conditions, providing an excellent finish for ultra-high frequency applications. Its hardness and chemical resistance are unmatched for use with reflectors, particularly with the open arc.

Rhodium plate retains its highly reflective surface indefinitely and does not diminish on exposure to corrosive atmosphere. For decorative, industrial and commercial applications, Rhodium plate qualifies as the top finishing material.

For valuable data on other properties and applications of RHODIUM PLATE, write for free detailed booklet.

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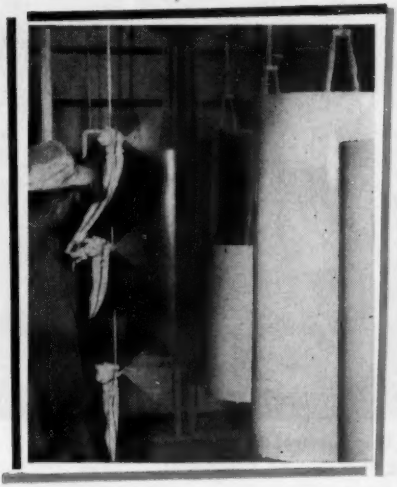
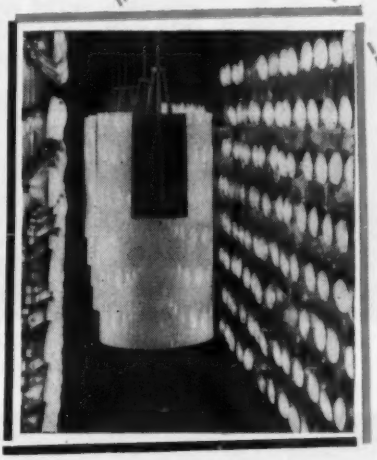




TOUGH FINISH

. . . on tough time schedule!

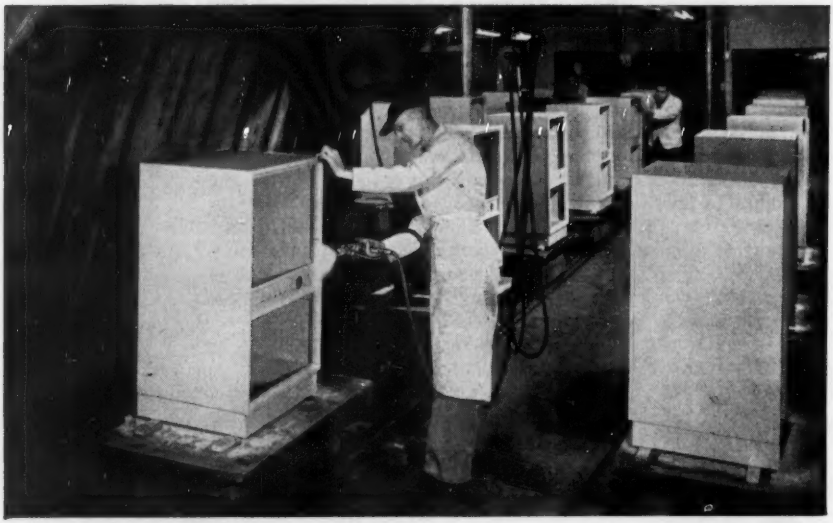
Tough finishes are not tough problems—with unlimited time for baking or curing. When extremely fast baking schedules must be met, however, it takes an outstanding material to produce the long-lasting mar-resistance demanded for hot water heaters such as the Rex Heater, produced by The Cleveland Heater Co.

Thanks to Sherwin-Williams KEMCLAD® Appliance White, a total time cycle of 30 minutes is maintained in finishing these jacket exteriors from bare metal, through automatic, electrostatic spray equipment and infrared oven, to finished jackets ready for assembly. Resulting finish has high hardness with flexibility . . . lasting gloss and washability . . . withstands heat without discoloration.

If greater toughness, or faster baking — or BOTH — are properties you can use, it will pay you to investigate KEMCLAD. Call, wire or write: The Sherwin-Williams Co., Gen. Ind. Div., Cleveland 1, O.

SHERWIN-WILLIAMS
Industrial Finishes

The efficient exhaust of this DeVilbiss water-wash booth makes it ideal for high-speed spraying of Magnavox components.



DeVilbiss spray gun gives operator a wide pattern at normal pressures. Fewer passes mean less painter fatigue.

BRANCH OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES THROUGHOUT

The secret of those magnificent finishes on Magnavox

Magnavox uses DeVilbiss guns to spray stain, sealer and finish coats.

The Magnavox Company, Fort Wayne, Indiana, turns out cabinets famous for eye appeal. Painstaking care – some cabinets receive seven finishing coats – and DeVilbiss spray equipment maintain top quality for Magnavox.

Magnavox uses a variety of DeVilbiss spray guns, booths, hose, connections and other accessories. Guns, for example, spray stain, sealer and finish coats. Their ball-and-cone principle of fluid tip and air cap centering assures a perfect spray pattern of uniform quality and fine atomization. Lightweight and finely balanced, they adjust exactly to the pattern desired.

The result is smooth finishes with greater depth, more uniformity. Painters are able to get uniform coverage because of the wide, even spray pattern. Result – fewer passes, less painter fatigue.

You can get complete data on DeVilbiss spray guns and other DeVilbiss equipment for high-quality finishes from your DeVilbiss jobber or our nearest branch office. Call today, or write direct to the factory.

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Toledo, Ohio

Barrie, Ontario • London, England
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FOR BETTER SERVICE, BUY
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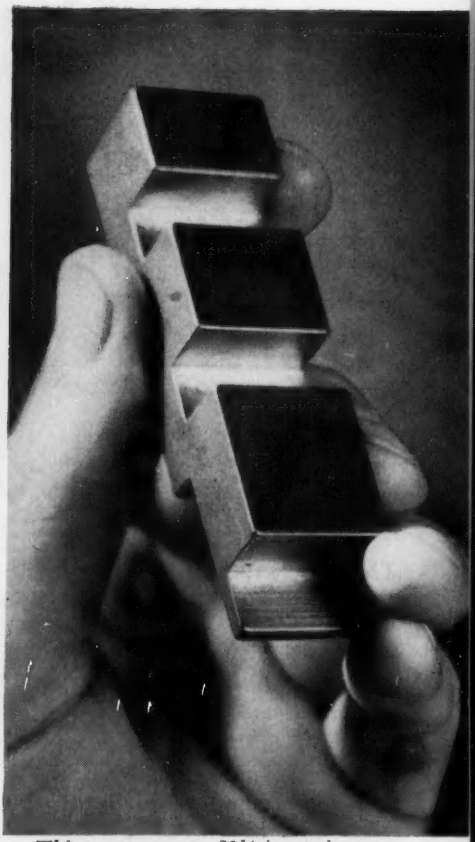
Cost on this piece cut 75% with barrel finishing abrasive

"TOUCH of GOLD"

enjoyed as Norton ALUNDUM Tumbling Abrasive goes to work



This part once cost 21½¢ per piece to finish. The manufacturer investigated barrel finishing and decided to give it a trial.

This finished part tells the story in a jiffy.

Once the work entailed "hand-deburring" at a cost of 21½¢ per piece. Now barrel finishing with Norton ALUNDUM abrasive does the job and the cost is 5½¢ per piece.

Besides the savings, these other advantages were also gained: ***Uniformity of radii and surface . . . Brighter color . . . Smoother finish.***

Are you taking advantage of Norton ALUNDUM tumbling abrasive in your work?

See your Norton Distributor for further facts. Or write to NORTON COMPANY, Worcester 6, Mass. Distributors in all principal cities, listed under "Grinding Wheels" in the yellow pages of your phone book. *Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Mass. G-281

This method — barrel finishing — proved a sensational cost cutter. The medium is Norton ALUNDUM* Tumbling Abrasive. The cost per finished part today is 5½¢!

This abrasive, a typical Norton finishing development, is sharp, dense, hard and non-fracturing. Its blocky shape eliminates slivers and chips in the process.

*Trade-Marks Reg. U.S. Pat. Off. and Foreign Countries

Making better products... to make your products better

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and its **BEHR-MANNING** *division*

NORTON: Abrasives • Grinding Wheels • Grinding Machines • Refractories
BEHR-MANNING: Coated Abrasives • Sharpening Stones • Pressure Sensitive Tapes

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makes the difference

Put your finish on a sound phosphate base . . .

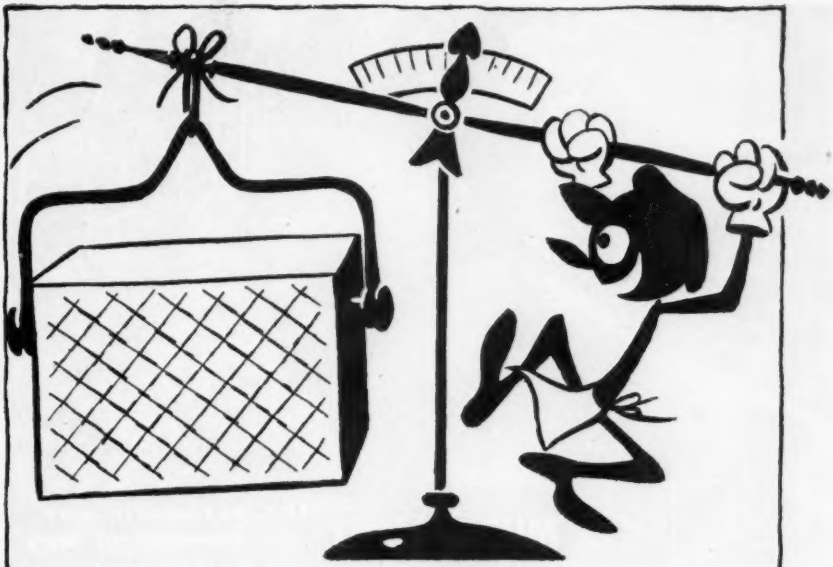
NORTHWEST INTERLOX

Interlox gives you a better, more corrosion resistant, more easily controlled phosphate base for your organic finishes. It exceeds most government specifications.

Interlox is a fine, dense grain coating developed for spray or immersion type baths—zinc phosphate or iron phosphate coatings. A very rapid depositing rate assures a high-quality, uniform coating throughout the unusually long life of the bath.

Got a problem? Let our cleaning experts help you!

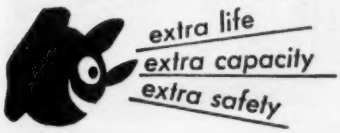
For the complete story on Interlox or any of the other Northwest Chemicals write or phone for a Cleaning Specialist.



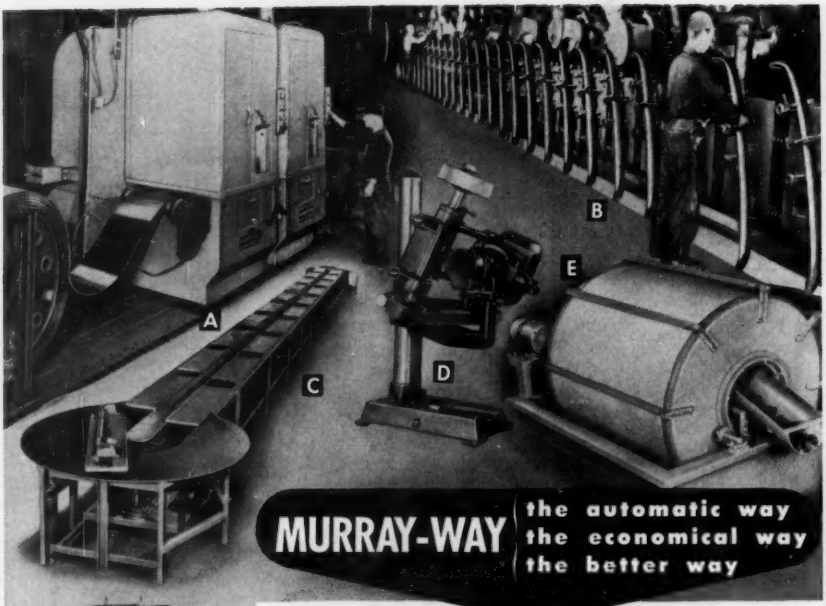
Pickling Pete Sure as fate Picks Monel For lighter weight

What makes Monel lighter? High strength (thin sections handle big loads) plus Monel's acid resistance (less corrosion allowance). Easy-to-repair Monel gives long life, too. Free booklet, "5-Way Savings in Pickling," is worth writing for today.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.



INCO TRADE MARK **Monel** Pickling Equipment



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the economical way
the better way

to POLISH... BUFF... GRIND... FILTER

Whatever your job . . . whatever your problem . . . Murray-Way automatic equipment will do that job better and more economically • These are just a few illustrations of Murray-Way's success in beating production cost with the finest automatic equipment available • You can depend on Murray-Way engineering, Murray-Way experience, Murray-Way equipment to solve your production problems.

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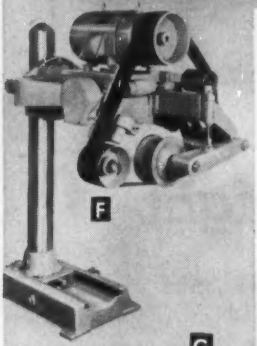
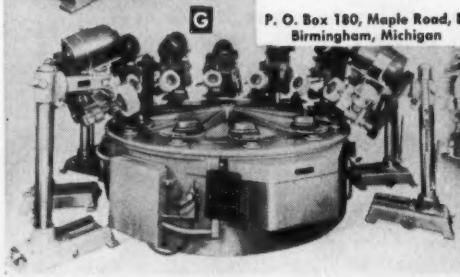
B. Vertical-Platen Conveyor
C. Horizontal-Platen Conveyor
D. #51 Universal Polishing Head —One of Several Standard Polishing Heads
E. The Automatic, Self-Cleaning, Compact Filter
F. #72 Series Belt Polishing Head
G. Indexing Dial Table
H. Six Micro-Polish Units in Series





P. O. Box 180, Maple Road, E.
Birmingham, Michigan

MURRAY WAY CORPORATION

Enthonics
AT WORK

Go from GRIME . . . to . . . SHINE . . . in SECONDS!

Use ENTHONE Emulsion Cleaner 75

DIP . . . . steel parts to be cleaned in Emulsion Cleaner 75 for only ***15 seconds.*** This simple immersion is done at room temperature (no heating facilities required) and with no irritation of the operator's nose, throat or skin.

RINSE . . . in plain water.

DONE . . . and done ***thoroughly*** . . . in seconds! All heavy oil films and solid dirt have been removed from every corner and crevice . . . from slots, tapped holes and sculptured patterns.

INSURE . . smooth, bright, adherent electrodeposits.

WRITE FOR FREE LITERATURE ON THIS SIMPLE, FAST, SAFE . . . AND ECONOMICAL . . . METHOD OF CLEANING METALS.

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Harshaw Perglow Bright Nickel . . . proved with more than 227,000,000 ampere hours of successful operation.

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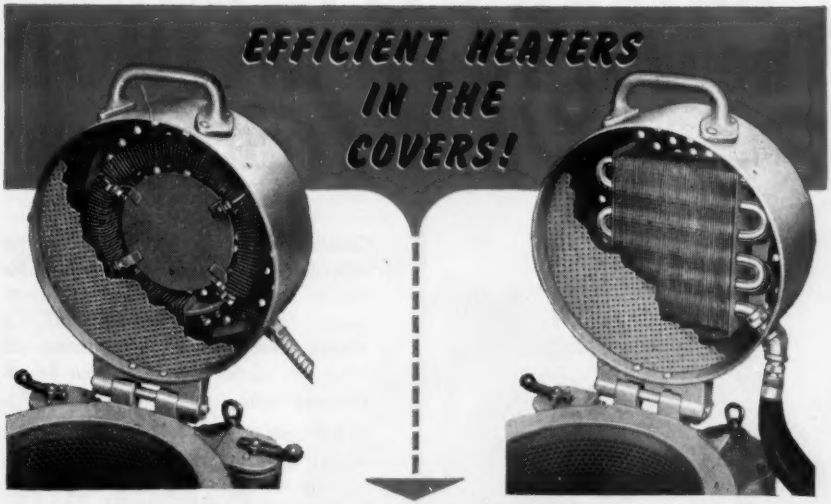

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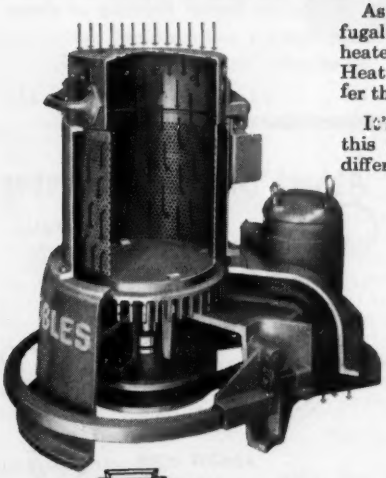

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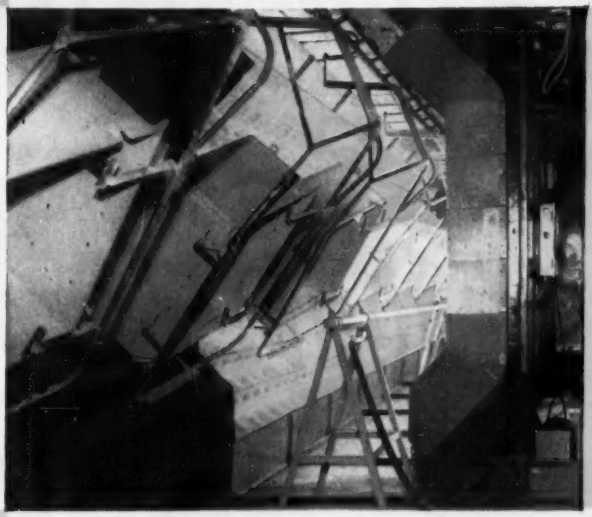

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Vol. 19, No. 3
DECEMBER, 1954

Season's Greetings

Although each issue of PRODUCTS FINISHING is really a personal message from the Editor to each reader, it is certainly fitting and proper that this issue, published at the Holiday Season, should contain a special word of greeting.

In wishing all our readers health, happiness, and success, we can, at the same time, re-dedicate the efforts of our editorial and business staff in assisting our readers in attaining their objectives.

It is our firm belief that progress in the Finishing Industry is achieved along two parallel courses; namely, by the development of new methods, materials, and techniques; and by the dissemination of that information to as wide an audience as possible. We will continue to further the progress of the Finishing Industry, and that of each individual reader, by bringing to each reader news of developments in finishing materials, equipment, and techniques, and information on the efficient application of such methods in industry to achieve good standard practice in the finishing of metal products.

Sincere in our desire to render a distinct service to the Finishing Industry, and mindful of the contribution to that service made by our readers, advertisers, and contributors, we of PRODUCTS FINISHING extend to our many friends our most cordial Season's Greetings and our best wishes for success in the years to come.

Ezra A. Blount
—EDITOR

Methods of Increasing PLATING SPEED

By WILLIAM P. INNES
Technical Director, MacDermid, Incorporated

Introduction

THE purpose of increasing the limiting cathode current density or rate of deposition of present day electroplating solutions has two obvious objectives: (1) to produce thicker deposits, (2) to increase production from existing equipment, or both.

Considerable progress has been made in recent years toward this end, enabling the finishing industry to handle the general increase in production in all metal manufacturing fields. Numerous firms are engaged in high speed plating research. If the end results of the various research and development programs being carried out is the doubling of today's rate of deposition, production output can be doubled with existing equipment, assuming the electrodeposited coating thickness remains unchanged. Plating equipment must be adapted to handle higher current densities either by increasing the conveyor speed or reducing the size of the plating tanks.

The current nickel shortage has served as an impetus for the development of alternate coatings, among which are tin-zinc, tin-nickel, copper-tin (Speculum and Nickelex), zinc-copper (white brass) and antimony. While each of these coatings has its application, none has made any major contribution toward increasing the plating rate. Some excellent work has been done recently on electrodeposition from fluoborate baths. These solutions, at present, are not capable of producing heavy, bright deposits comparable to bright nickel. The goal of high speed plating research is to develop economical, bright plating electrolytes and technique to provide practical deposition rates considerably higher than those being used today. Nickel and copper are the most commonly used electrolytes, so this paper shall deal primarily with these two metals.

The following formulation[1] defines the limiting cathode current density and permits a study of the factors which affect the speed or

(1) W. A. Wesley, W. W. Sellers, and E. J. Roehl, "Electrodeposition of Nickel at High Current Density," Annual Proceedings, American Electroplaters' Society, 1949, p. 80.

Table I

	Limiting Cathode Current Density	Min./mil thickness
Theoretical Values		
$I(NiSO_4)$	134 asf(s)	9
$I(NiSO_4)$	4000 asf(a)	20 seconds
$I(NiCl_2)$	280 asf(s)	4.25
$I(NiCl_2)$	8400 asf(a)	8.5 seconds
Experimental Values		
I(CuCN)	15 asf(s)	40
I(CuCN)	320 asf(a)	less than 2
$I(CuSO_4)$	60 asf(s)	20
$I(CuSO_4)$	1240 asf(a)	1

Note: (s) indicates still solution
(a) indicates agitated solution

limiting cathode current density.

$$I = \frac{DnF}{\delta\,(1-\alpha)}\,C$$

where: I = limiting cathode current density, amp./sq. cm.
D = diffusion coefficient (temperature and anion), sq. cm./sec.
n = number of electrons in discharge process.
F = 1 Faraday (96,500 coulombs).
C = Concentration of metal salt, mole/ml.
δ = thickness of cathode film (cm.). For nickel chloride (still) $\delta = 0.03$ cm. (0.0118 inch). For nickel chloride (agitation) $\delta = 0.001$ cm. (0.000394 inch).
α = transport number of nickel ions (minimum cations).

The formulation is a summation of two factors (migration and diffusion) and dependent variables thereof. Migration is the process of getting the ion to the cathode film under the influence of electrical attraction. Diffusion is the process of getting the ions through the cathode film so that they can be reduced or electrodeposited.

Variables Affecting Limiting Cathode Current Density

The following analysis shows how changes in the variables listed above affect limiting cathode current density.

1. Diffusion Coefficient.
   Increasing the temperature and using an anion with the highest mobility favors high speed plating (increased diffusion).
2. Concentration of Metal Salt.
   Raising the metal salt concentration increases the current density (increased diffusion).
3. Transport Number.
   Using the minimum number of cations helps speed (increased migration).
4. Thickness of Cathode Film.
   Increasing the agitation results in higher speeds (increased diffusion).

Table I shows values for limiting cathode current density, comparing theoretical values with those obtained experimentally.

Limitations of High Current Density

The use of high current density

imposes some limitations on properties of deposits and solution operating conditions. A few of these are outlined below.

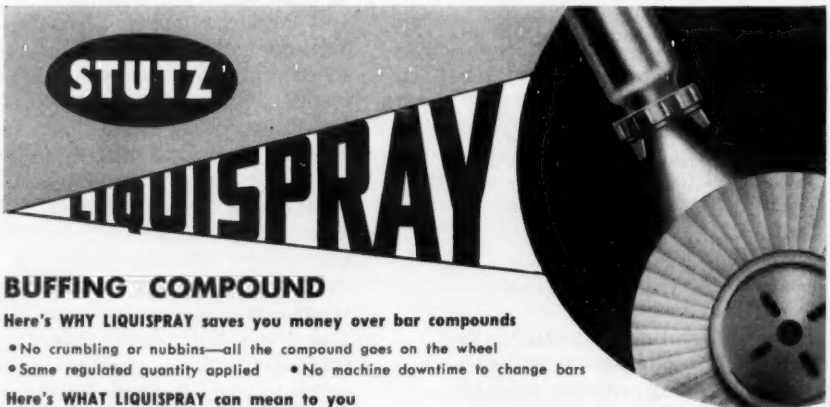
1. Physical Properties.
   The ductility is increased due to finer grain size, but reduced due to side reactions such as the deposition of metal hydroxides.
2. Throwing Power.
   Throwing power is favored by high current density. High temperature and concentration decrease throwing power.
3. Stability of the Electrolyte.
   Breakdown of salts and brightener are likely at high temperature.
4. Equipment.
   The high voltage required for high current density causes the solution to heat up rapidly. Contacts must be considerably larger to carry double or quadruple the usual current.

Small anode-to-cathode distances are necessary to keep the voltage down. Cooling of the solution is mandatory due to the high amperage per gallon. Figure 1 shows how the voltage increases as the current density goes up[1].

How the Job Shop Can Increase Current Densities

The following steps can be taken immediately in the job plating shop or plating plant to obtain increased current densities and reduce plating time while still maintaining normal deposit thickness.

1. Increase metal salt concentration.
2. Remove foreign cations.
3. Use a high mobility anion.
4. Reduce cathode film thickness



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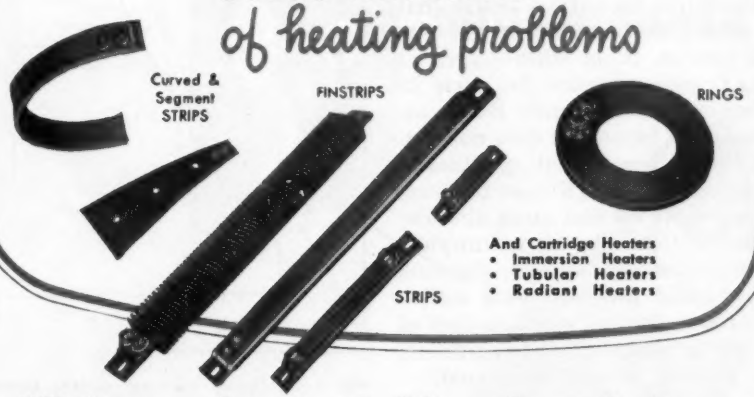

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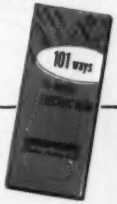

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by using one of the following techniques:

(a) Periodic Reverse, or Current Interruption.

(b) Air, hydraulic and/or cathode rod agitation.

With reference to the use of air agitation, it should be noted that air should be provided at the rate of 2 cfm/sq. ft. of surface area at 1 p.s.i. gage pressure for each 22 inches of solution depth. Blown air is preferred because it does not contain the oil contamination found in compressor air which must be filtered to remove oil and other airborne contamination. The air is introduced through a coil placed on the tank bottom, and provided with sufficient outlets on the upper surface of the coil to secure effective agitation. The solution should be filtered.

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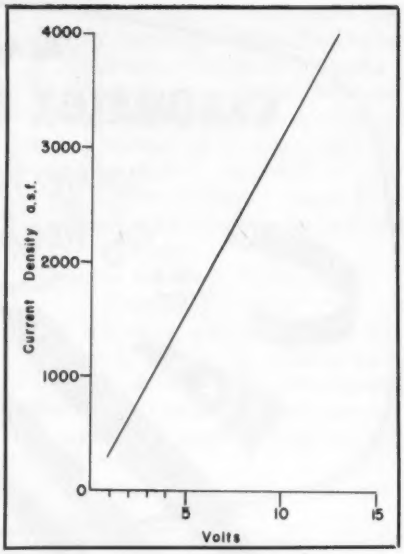
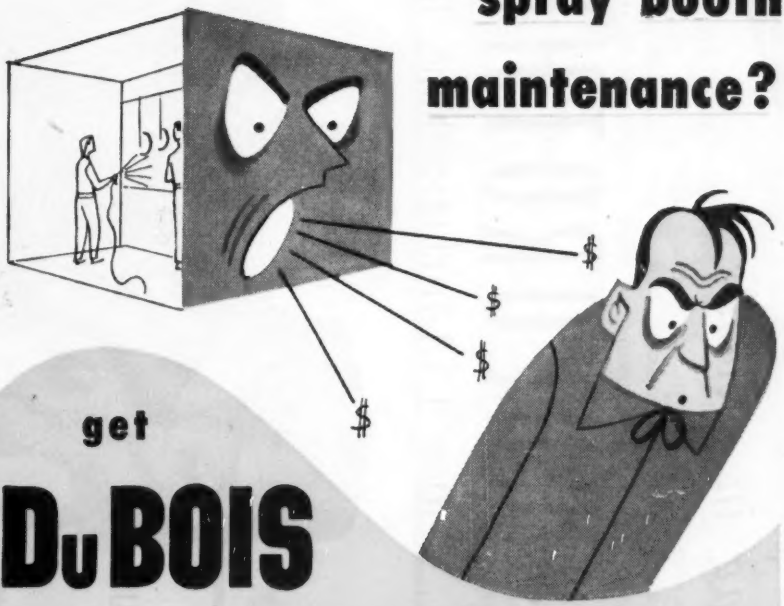


Fig. 1 — Curve, showing current density-voltage relationship, determined for a nickel chloride solution using anode-to-cathode distance of ¼ inch.

Using hydraulic agitation, or pumping the solution out of the tank and back into the tank, the solution turn-over should be 4 times per hour. The same type of perforated pipe can be used to return the solution to the tank. Holes should be ¼ inch, and the total area of the holes should be larger than that of the pipe cross section. Filtration in this case is a "must."

High speed plating requires good chemical control, purification and the proper plating equipment. It can be compared with the high compression engine that requires high octane gasoline to function with its designed effectiveness. Both, however, represent progress in their respective fields.

why tolerate costly spray booth maintenance?



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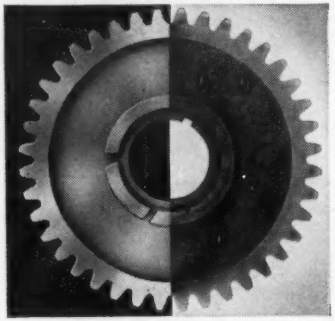

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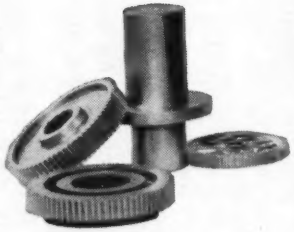

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How the Paint Warmer Aids Finish Application and Quality

By LEE TURNER

THE paint warmer or heater is a device for heating paints to any desired temperature prior to use. Designed in two types, circulating and non-circulating models, it is used primarily for pre-heating paint to be sprayed, although it can be used in various other methods of application, such as roller coating, dip tank, and electrostatic spray methods. Many paint manufacturers are now formulating paints specifically for use with a paint heater, although standard formulations are usually satisfactory. In spraying applications, the basic idea behind paint warmers is to keep application temperatures above 110 deg. F. and so ensure uniformity of process regardless of weather or plant temperature.

Improved Control

When using equipment provided with a paint warmer, paint of the proper viscosity can be used as obtained from the manufacturer. Thus no thinning is required for cool mornings, seasonal changes, or variations in plant temperature for any cause. One control variable is thereby eliminated. The ratio of solids to solvent at application viscosity always being uniform, the film thickness is no longer dependent upon adjustments in viscosity made by adding solvent.

Also eliminated is the human error involved in readjustment of fluid and air pressures due to temperature variation during the course of a day. Some degree of objective control can be realized in the matter of atomizing air pressures, by correlating the air pressure used with a viscosity—temperature curve. Thus, if the measured viscosity drops approximately 40 per cent over a given temperature range, the atomizing air pressure necessary for proper performance may be reduced correspondingly.

Viscosity control is important for the other processes of paint application as well. Specifically, the temperature ranges shown in Table I are recommend for the various processes, depending upon the results desired.

If reducing with solvent is necessary, the paint warm is an aid in obtaining a uniform temperature (usually 77 deg. F.) at which the reducing can be performed.

Improved Films

The first advantage to be noted in the films deposited using this method is in more uniform film thickness. Solids content being almost un-

Table I

TEMPERATURE LEVELS IN PAINT APPLICATION

Temperature Deg. F.	Process
77	Mixing and cutting.
90	Dip Tank, plus circulation and straining.
	Roller Coat—gelatin rolls.
	Flow Coat.
	Bronze paints, plus circulation to gun or application point.
110	To maintain production efficiency, control viscosity, use same solvent year around.
	Practically all paints and all systems.
	Maximum for some wrinkle paints.
110 to 130	Roller Coat—composition or rubber rolls.
	Electrostatic Ransburg No. 2.
	Most metallic paints.
	One-coat hammer finishes—for pattern uniformity.
150	Baking synthetics are usually held to 150 deg. F. due to high melamine content. If higher temperatures are used system should be cleaned each night.
165	Varnish.
	Vinyls.
	Maximum for lacquers.
180	To get highest film build. This high range dissipates more solvent between gun and work.
	To compensate for insufficient flash-off.
	Air-dry synthetics.

varying, the film thickness left after evaporation of solvent is almost always uniform. Since a higher solids content product can be used, the film shrinkage during evaporation of solvent is less and the film much thicker for a given volume of paint applied. Users of high viscosity materials (example: 27 per cent solids lacquer) can fully appreciate this advantage.

Film thickness is very important in determining properties of the dried film; too thin a film gives rise to poor quality and appearance; too thick a film means only increased cost and waste of material.

The fact that less carrier solvent is deposited in the film is also of importance in film properties. Advantages to be found in this fact are: the films are less porous, and the danger of eruption is smaller; filling of small imperfections is better using the higher solids product; knitting of the solids during film formation is more easily accomplished; blushing (caused by too rapid evaporation of solvent and subsequent condensation of water vapor on the surface of the film) is virtually eliminated; films reach the tack free state more rapidly, rewarding the finisher with less dust pickup and less time elapsed between coats; in applications over plastic surfaces, solvents sometimes attack the plasticizer, causing roughness, or an etched effect. This danger is reduced in proportion to the smaller

amount of solvent used in this type of application, compared with application with no heat input.

Flowout and leveling are above average using the heated material, which is shown to great advantage in applications where small metal imperfections are present. Small valleys and scratches in castings can be covered more easily, due to high filling properties and less shrinkage of the film. Thus such items as machine tools, generators, motors, and hot rolled steel assemblies can be substantially improved in appearance by this method. Leveling characteristics also help to eliminate so-called "fatty edges" around metal perforations.

Especially temperature sensitive are "hammer" and wrinkle paints. In the case of "hammer" paints, pattern uniformity can be had at one temperature. The painter's spray gun can pass twice over the same area without destruction of the pattern; in room temperature spraying, this would eliminate the hammer pattern. In applying wrinkle finishes, the solvent function of the paint is sensitive to temperature variation. Pattern uniformity is better if the finish is applied at one temperature, 115 deg. F. being generally recommended for best results.

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Olive drab paints are also applied more easily at elevated temperature. Improved paint breakup is obtained at elevated temperature.

Ease of Application

A given film thickness may be sprayed on easier and with less effort, once the operator is accustomed to the method. This can be largely attributed to decreased resistance of the heated paint to breakup, along with the fact that a larger proportion of solids is deposited with each stroke of the spray gun. It must be remembered that rapid motions of the operator or the high velocity of air applying the paint are not proper evaluations of production speed. The best evaluation lies in the answer to the question, "What amount of solids is applied in a given time with the least effort?"

Important in plants having limited space is the fact that two coats can often be applied in one pass of the gun using heated paint.

Since viscosity is reduced as temperature is increased, lower air pressures can be used for atomizing, resulting in less overspray.

Another important point in handling ease is the fact that the same solvent can be used for reducing regardless of seasonal or weather conditions, since application temperature is always the same. This means less juggling of solvent ratios and fewer adjustments during production runs.

In general, there is no necessity for readjustment of formulations in the case of varnishes, synthetic enamels, pigmented laquers, and vinyl plastic paints, since these are usually formulated with slow evaporating solvents. Only in the case of clear lacquers, where fast evaporating solvents are used, is there need for reformulating with slower solvents.

Generally, heat is not detrimental to the film-forming characteristics of paint formulations. This can be authenticated by the fact that many cooking temperatures used in making paint vehicles are in excess of 400 deg. F., and baking cycles are often carried out between 120 and 350 deg. Fahrenheit.

Pre-Paint Treatment of Ferrous Surfaces

By ROBERT WISE
Technical Representative

THE preparation of a metal surface on which paint or enamel is to be applied is a vital factor in the life and service of the coating. The quality of the paint itself may often be of less importance in the final result than the quality of the surface preparation. Manufacturers have discovered that there is a factor that is vitally important to good looks and long wear —chemical conditioning of the metal surface to receive paint.

Paint pre-treatment processes now commonly in use result in the conversion of a microscopically thin surface layer of the metal into a minute crystalline layer of insoluble metallic phosphates that becomes a part of the base metal. The phosphate coating thus imparted improves the adhesion between the organic coatings and the metallic surface. The organic film becomes locked to the phosphate coating and the phosphate coating is integral with the steel. Protection is also present in the ability of the phosphate coating to inhibit the spread of corrosion beneath the paint film.

It is helpful to understand the role of phosphate coatings when corrosion attacks a metal surface. Examine a piece of cold rolled steel. It is smooth and shiny. Then check this same piece of steel under magnification, and a very irregular surface will appear. This surface will be composed of peaks and valleys which can become electrically anodic and cathodic in relation to each other. Similar electrical differences are caused by mechanical stresses and strains on the surface, or by the presence of foreign particles such as carbon or silica.

Whenever moisture is present, galvanic action starts. The anodic and cathodic areas pair up to form tiny electrolytic cells. Electrical flow between the anodic and cathodic regions in the cells actually carry iron away from the anodic poles. Pits then appear and iron oxide (rust) will agglomerate in the surrounding (cathodic) areas. The rust develops into an alkaline reaction with moisture and then spreads to an even larger area in the same alkaline reaction. The creeping of alkaline reactions beneath a paint film is a more pernicious source of paint failure than rust itself.

By this action, two conditions inimical to good paint adherence would arise. First, the alkaline reaction combines with the oily vehicle of the paint to form a soap, which inter-

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feres with the adhesion of the paint to the steel. Second, the physical structure of the rust that forms is very weak. The galvanic or electrochemical corrosion of phosphated surfaces is eliminated since the coating itself is non-conductive. Then the anodic and cathodic differences are eliminated completely. Thus the formation of the typical pits and the piling up of the iron oxides (rust) is definitely prohibited. Since the solutions are on the acid side, the steel surface is non-alkaline, thus eliminating any possibility of the formation of metallic soaps, which are detrimental to the adhesion of paint.

Actually, the interlocking grip between the paint film and the metal surface is increased by the phosphate coating. If the paint film should be damaged at some later date and rust develops in the injured area, the phosphate coating prevents the creepage of the rust under the undamaged area and thus prevents further paint peeling. Similarly, on parts that are only partly painted, the phosphate coating inhibits the unpainted portion from rusting and prevents any rust that does develop from spreading to and underneath the painted area. Phosphating processes may be used to produce either thin or heavy films,

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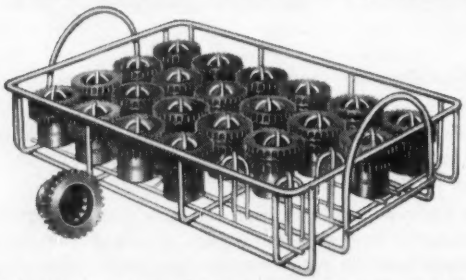

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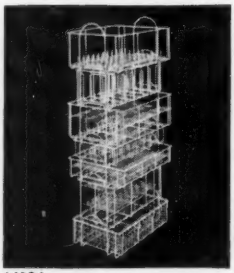

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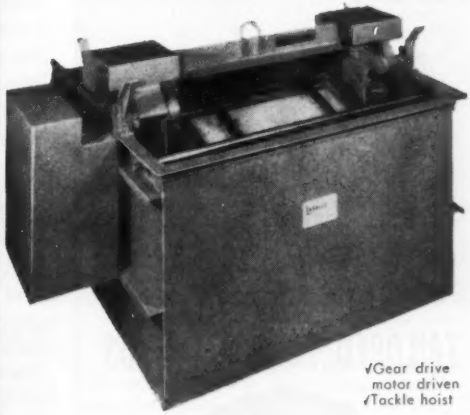

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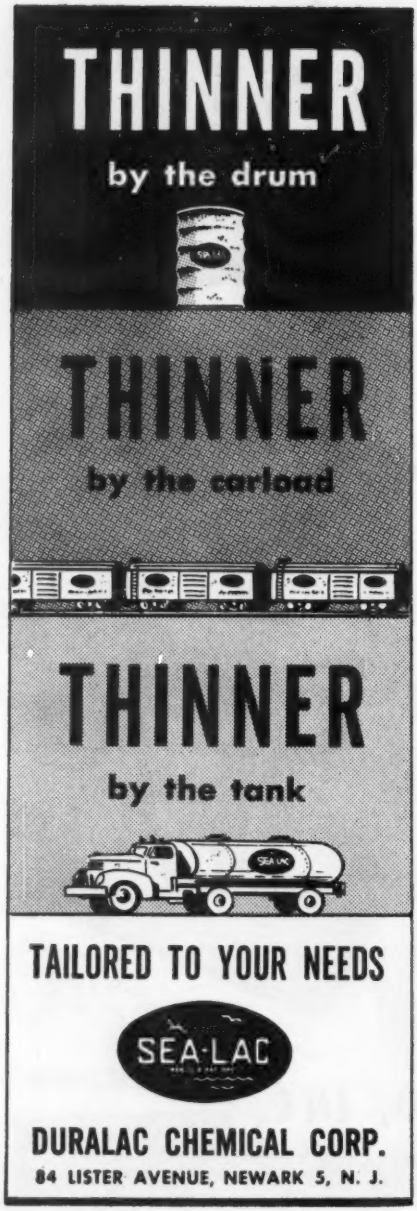

depending upon the purpose for which the part is made.

Phosphate coating materials have been in use since the early 1900's. The original formula consisted of phosphoric acid and ferrous sulfate, and required several hours to produce a satisfactory coating. The scheduling of modern industry has caused many improvements that have resulted in the present phosphate treatments producing greatly superior results in 30 to 90 seconds. Some combine cleaning and phosphatizing properties in one material.

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The system described above is widely used, but not necessarily the best or the most economical. The first stage must be dumped at frequent intervals since it becomes contaminated with the soils removed from the parts going through the equipment. Many manufacturers have employed the use of a five stage setup consisting of a wash followed by a hot rinse and then the phosphatizing setup described above.

The equipment involved in most phosphatizing operations should be of mild steel. Brass impellers in

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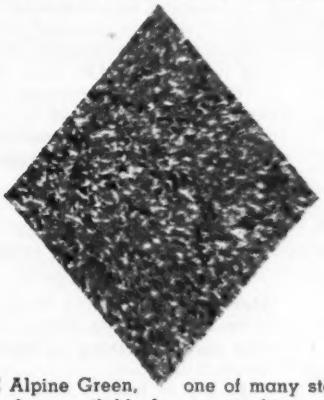

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pumps or brass spray nozzles should not be used. Chemical reactions between the phosphate and the brass takes place which throws the solution out of balance. In some phosphatizing materials of very low pH value, stainless steel pumps, piping and nozzles should be employed in the phosphatizing stage. A mild steel tank can be used in this stage.

The user of phosphatizing processes will do well to discuss the method and equipment to be used with a representative of a firm specializing in phosphatizing processes. These men are technically trained in the process of proper application of a phosphate coating. They are competent to set up the equipment and get the processing started. They are also trained to constantly check and recheck to see that the process is continued at the optimum rate.

Analyzing statistics released last month by the Bureau of Mines, The Malayan Tin Bureau, Washington, D. C., stated that almost 20 per cent more tin was delivered to industry in this country last year than in 1952. American industry received 57,969 long tons of primary tin in 1953, or 9312 more than in the preceding year. The most recent monthly figures, "Tin News" reported, showed total U. S. industrial consumption of tin in June of this year was an estimated 5100 long tons, 111 more than in June of 1953, and 4500 long tons in July, 171 more than in 1953.

"Tin News" also disclosed that tin-nickel alloy plating is being used by a British manufacturer of scientific instruments to replace gold plating for analytical scale weights.

REPRINTS AVAILABLE

A limited number of reprints of the following articles from PRODUCTS FINISHING are available to readers without charge.

"Bright Nickel Process Simplifies Bumper Manufacture,"
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"Chemical Surface Treatment Extends the Durability of KoolVent All-Weather Aluminum Awnings,"
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	JENSEN	OVEN "X"
Power Demand	286 KW	465 KW
Total Time	4 minutes	5¼ minutes
Chain Speed	16 FPM	12 FPM
Work Spacing	56"	72"
Lb. Steel per KW	25	9
Lb. Frit per KW	2.5	1.8
Lb. Water per KW	.63	.71
Total Beneficial Heat (B.T.U.'s)	349,000	509,000
Total Input	980,000	1,600,000
Efficiency	48%	40%
Air Blowoff Required	No	Yes

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Electroplating Prior to Hot Dip Galvanizing

THE effects of thin coatings of electrodeposited metals applied to steel prior to hot galvanizing have been described in a recent article by Allen T. Baldwin in "Metal Progress," 64 #6, 76 (1953). It has become customary to add very small amounts of foreign metals, particularly aluminum, to the molten zinc in order to produce hot galvanized coatings with certain desirable characteristics. The author undertook his experiments in order to determine whether trace amounts of certain metals introduced as electroplated films might give similar or other desirable properties to the hot galvanized coating. In particular, the author was interested in studying the effect of the plated coatings on the solubility and diffusion of the iron in the zinc coating, since these are important factors which influence the adherence and ductility of the hot dipped coating.

Panels of A.I.S.I. 1010 having a high finish and measuring 0.029 x 3 x 8 inches were electroplated as indicated in Table I by

Dr. Seymour Senderoff
Supervisory Chemist,
Electrodeposition Section
National Bureau of Standards

A Monthly Digest of Current Technical Progress Indicating Significant Trends and Developments in the Finishing Industry

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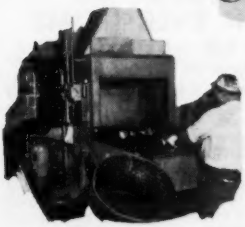

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Table I

ELECTRODEPOSITED FILMS APPLIED BEFORE HOT DIPPING		
Metal Plated	Thickness (inch)	Weight (oz./sq. ft.)
Zinc	0.000033	0.02145
Tin	0.000033	0.02003
Nickel	0.00002	0.01442
Iron	0.0002	0.1300

standard commercial plating methods. In production the plating would follow a pickling or cleaning step so that the strip steel could be preheated or prefluxed if desired. The author found that panels could be successfully hot dipped several days after plating without further treatment by passing them through a fusion of No. 20 flux on the molten zinc at 845 to 850 deg. F.

Zinc plate was chosen for study to determine whether it might minimize the amount of diffused iron in the coating, and iron plate was included to see whether it would increase the amount of diffused iron in the final coat. Nickel plate was of particular interest as a possible coating to protect the steel during preheating. The tin plate was studied because it is one of the metals commonly added to the molten zinc to increase the effectiveness of the galvanizing. In this connection, aluminum would have been studied, but the author omitted this metal in this study because there is no commer-

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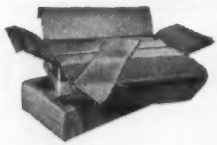

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cial method available at present for its electrodeposition. Finally, unplated steel panels of the same type were included in the series for comparison.

The unplated samples and those with iron plating were first dipped in a No. 20 flux wash. The other electroplated samples were not given this preflux dip. To control the dipping time each plate had a heavy weight wired to one corner and another wire attached to the corner diagonally opposite for use as a handle. When the weight had lost buoyancy, the plates were allowed to sink vertically through the fused flux layer and remain in the hot zinc for the predetermined times.

Samples of each type were immersed in the molten zinc for periods of 10, 30, and 60 seconds, and quenched in hot water immediately after removal from the zinc. The samples, which had approximately 14 grams of zinc coating, were then sectioned and examined metallographically.

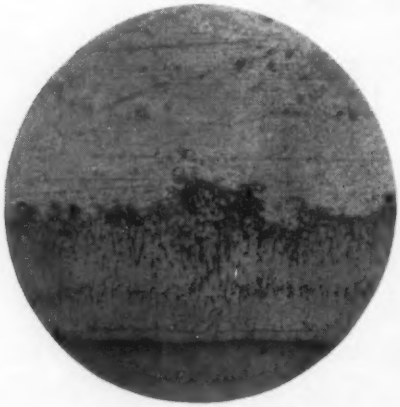

Fig. 1—Sample without preplate, galvanized at 850 deg. F. for 60 seconds.

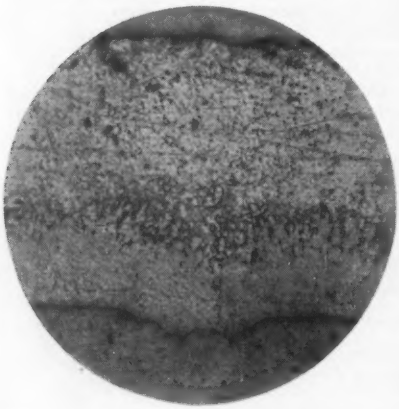

Fig. 2—Sample preplated with 0.0002 inch iron, galvanized at 850 deg. F. for 60 seconds.

Figure 1 is a cross-section of the unplated steel to which a zinc coating was applied with a 60-second immersion. The author considers this as typical of the structure of commercial hot dip zinc coatings when there is no aluminum present. The effect of an electroplated iron film is shown in Fig. 2. It is observed that the diffusion is more uniform in this case than in the case of the unplated sample, and the layers up to the eta (e) phase seem to be thicker.

Figure 3 shows the sample which had received an intermediate layer of electroplated tin. The author calls attention to the diffusion pattern at the upper edge of the gamma layer. The panels which had been electroplated with zinc and then hot-dipped show lines of phase separation which are more uniform and a vertical structure which appears denser, as shown in Fig. 4.

Figure 5 shows the nickel plated

to page 52→

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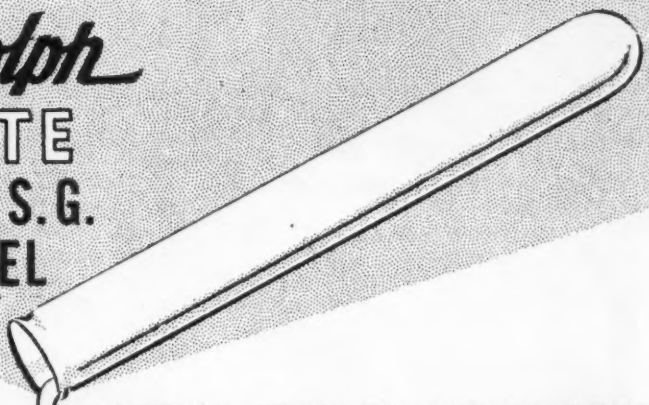

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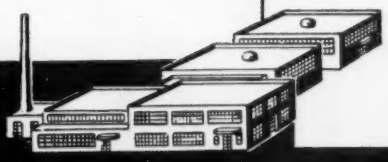

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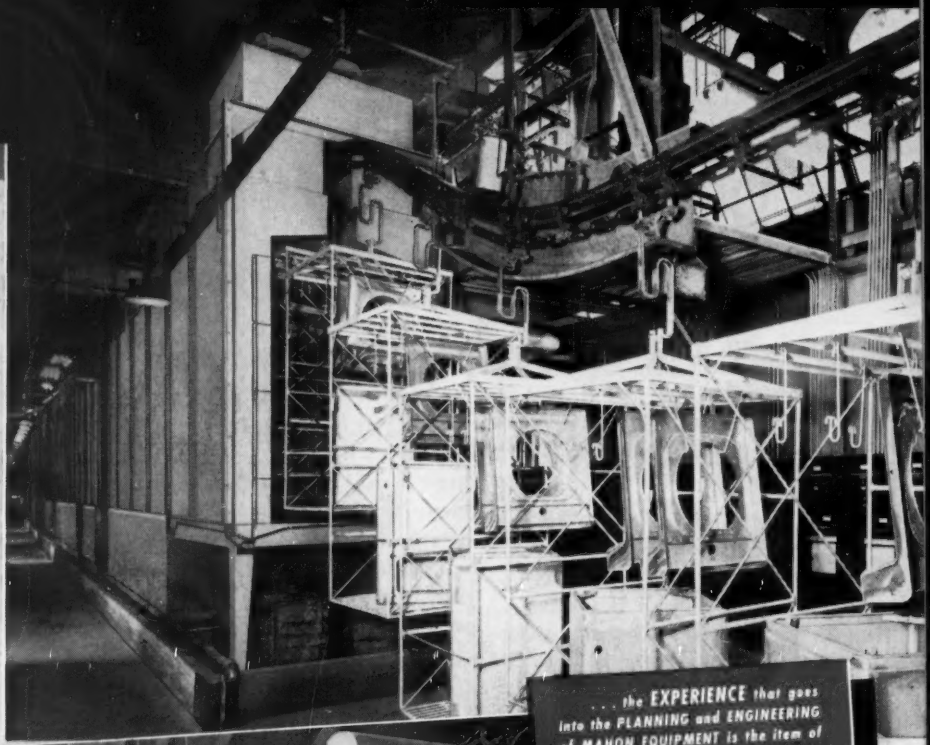

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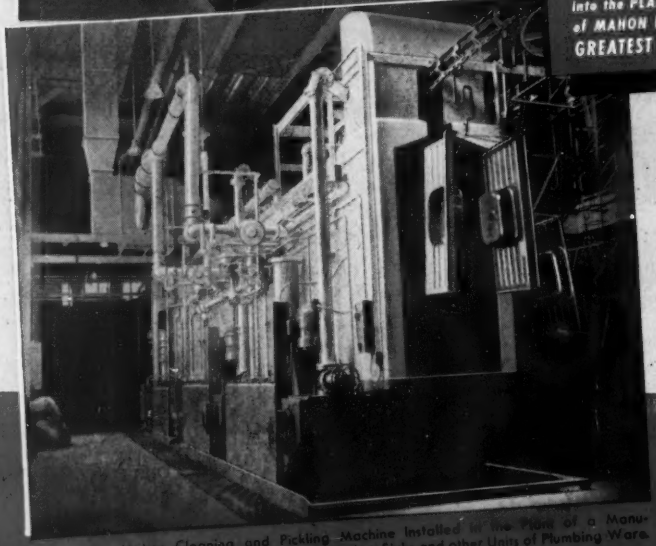

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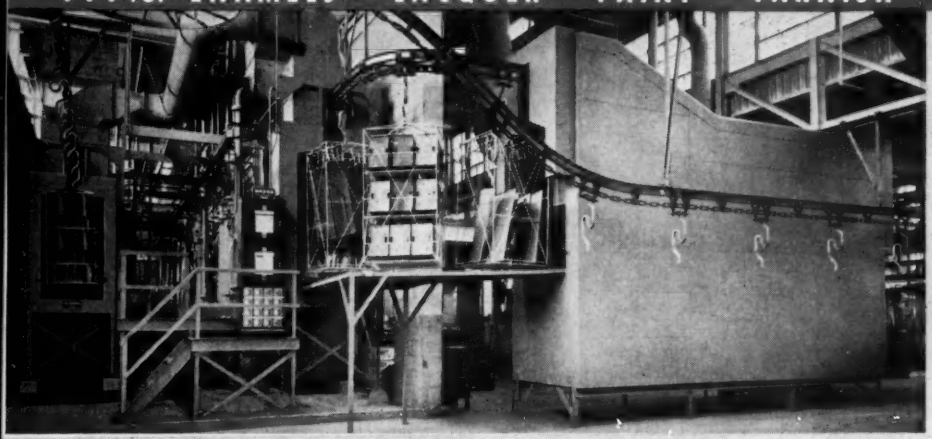

Mahon Cleaning and Pickling Machine with Dry-Off Oven Installed in the Plant of a Leading Electric Range Manufacturer.

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Pickling operations no longer require a separate room with elaborate ventilating, fume control, and air replacement equipment. Cleaning and Pickling, preparatory to porcelain enameling, can now be done on the same overhead monorail conveyor that carries parts through other processing units of your conveyorized production finishing system. Pickling can be done in one third the time with more uniform results in a modern Mahon conveyorized spray-impingement Pickling Machine. All this is made possible by a Patented Hydro-Hermetic Seal on the Mahon Pickling Machine which effectively seals the top of the processing tunnel and provides positive protection for the conveyor track, trolleys and chain . . . no corrosive fumes can escape to damage conveyor parts. Sixteen of these Mahon Pickling Machines are now in operation in plants where descaling, pickling and rust proofing are necessary phases in the finishing process. Mahon Cleaning and Pickling Machines can be fitted right into your present finishing production system . . . they can be designed to meet any existing layout, processing requirement or production rate. Have a Mahon engineer call and give you complete information . . . and, let him tell you where and how a Mahon Conveyorized Spray Pickling Machine will cut costs in your present setup. See Sweet's Plant Engineering File for other Mahon Industrial Equipment, or write for Catalog A-655.

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Engineers and Manufacturers of Metal Cleaning and Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Spray Booths, Flow and Dip Coaters, Drying and Baking Ovens, and Complete Conveyorized Production Finishing Systems.

AHON

sample. The particles with the dog-tooth shape that are seen in this photomicrograph were found much closer to the steel base on the sample which had been immersed in the zinc for 10 seconds, but had apparently moved outward with increasing immersion time.

The author does not consider these experiments as sufficiently exhaustive to permit the drawing of definite conclusions. He does, however, indicate the following impressions which may be derived from the results thus far available:

1. Electroplated films may be used to improve the process of hot galvanizing strip steel by protecting the treated surfaces of the steel prior to coating. A film of non-ferrous metal may protect the steel from oxidation after pickling; and even though the protective film itself may oxidize slightly, this is not as harmful as oxidation of the steel.

2. No radically new phase pattern appears in the coatings, except possibly with nickel.

Fig. 3—Sample preplated with 0.000033 inch tin, galvanized at 850 deg. F. for 60 seconds.

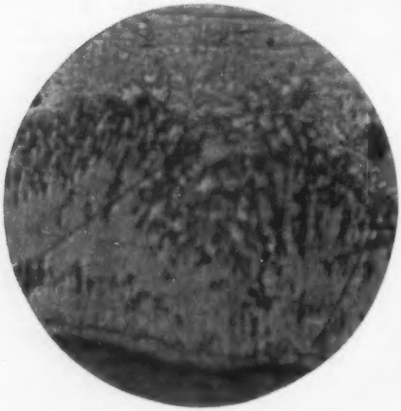
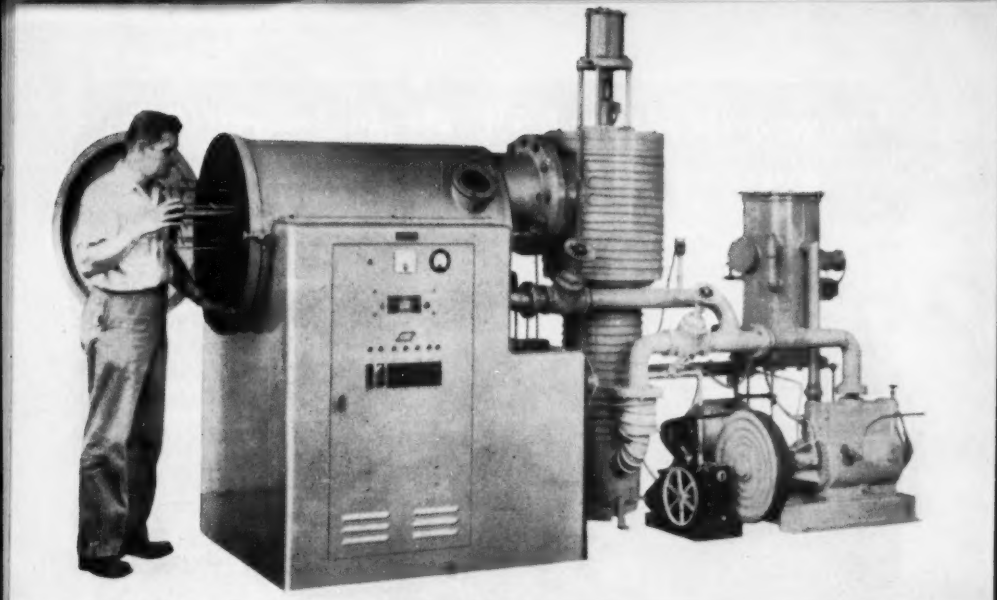


Fig. 4—Sample preplated with 0.000033 inch zinc, galvanized at 850 deg. F. for 60 seconds.

Fig. 5—Sample preplated with 0.00002 inch nickel, galvanized at 850 deg. F. for 60 seconds.
(Illustrations courtesy Hanson-Van Winkle-Munning Company, Matawan, N. J.)



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You don't need to be a high vacuum engineer to set up and operate this new *CVC* coater. It comes complete with all necessary controls—need only be connected to service lines. Here are the details:

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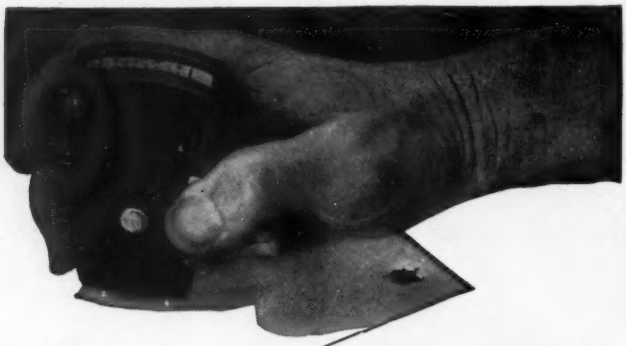
3. Thin electroplated surfaces can be used as a means of establishing a desired surface for hot galvanizing.

4. The experimental procedure described here might be developed into a method for studying the effect of time and temperature on the diffusion of iron or other metals through the zinc coating.

In conclusion the author points out that the desirability of using electroplated films before hot dipping may be largely determined by economic considerations, and the desirability of preheating the strip and maintaining the actual time of immersion in the molten zinc rather short. He does not believe that the cost of the electroplating step itself would be prohibitive, and considers the flexibility in processing variables which would result from a choice of non-ferrous surfaces as definitely advantageous.



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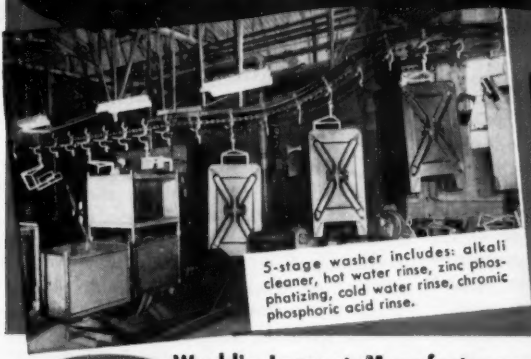


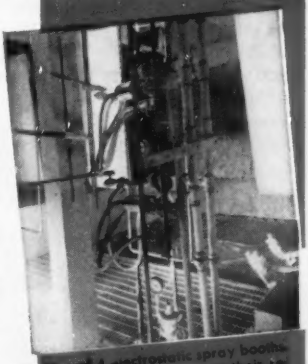
5-stage washer includes: alkali cleaner, hot water rinse, zinc phosphatizing, cold water rinse, chromic phosphoric acid rinse.

...rance, right; exit, left to 2-pass ...y-off oven. Time: 8 min. at 300°F.

Amana World's Largest Manufacturer of Food Freezers Expands

As part of a major expansion program Amana Refrigeration, Inc., Amana, Iowa, installed a DESPATCH 2-coat, 2-bake electrostatic paint finishing system with a capacity of 400 freezers and 200 room air conditioners on an 8-hour shift. The new streamlined system is credited with increasing Amana's production by 150%, has greatly improved finish quality and has achieved substantial paint savings through more efficient paint application and paint reclamation processes.

Ware travels on a 27-foot continuous conveyor through 5-stage washer, dry-off oven, prime and finish staggered electrostatic spray booths, prime and finish touch up booths, prime and finish multiple pass bake ovens and inspection area to three assembly lines.



...of 4 electrostatic spray booths. ...ooths spray 2 passes on their re... ...pective sides.

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How United Produces Clean and Durable Steel Drums

RUSTY steel drums have long been a familiar sight in industrial backyards. In the past, exposure to sunlight, air, fumes, moisture, and temperature changes soon affected the glossy paint finish on new drums detrimentally, with red rust spoiling both paint and metal (Fig. 1).

This short life expectancy was—and still is—the unfortunate fate of steel drums not chemically cleaned and protectively coated prior to painting or lining. However, the technique of cleaning and phosphate coating steel has produced a drum with far more rugged durability under actual service conditions (Fig. 2).

At The United Steel Barrel Company, Philadelphia, Pa., drums of all the standard sizes are fabricated from hot rolled steel. Then, in the Granodizing process, they are freed not only from grease, but from scale as well, and are then protectively coated with a rust-inhibiting, non-metallic crystalline phosphate over the entire inside and outside surface.

United's Granodized drums show no contamination or any other foreign matter remaining on the inside. Paint adhesion is uniformly durable over the entire exterior and interior surface.

The Granodizing Process

At United Steel Barrel the Granodizing process is carried out in a multi-stage power washer, (Fig. 3) and includes the following operations:

A. Chemical Cleaning

Stage No. 1—Alkali cleaning, "Ridoline" No. 155.

Stage No. 2—Rinsing, water.

Stage No. 3—Pickling, sulfuric acid inhibited with "Rodine."

Stage No. 4—Rinsing, water.

Stage No. 5—Neutralizing rinsing, "Ridoline" No. 155.

Stage No. 6—Rinsing, water.

B. Phosphate Coating

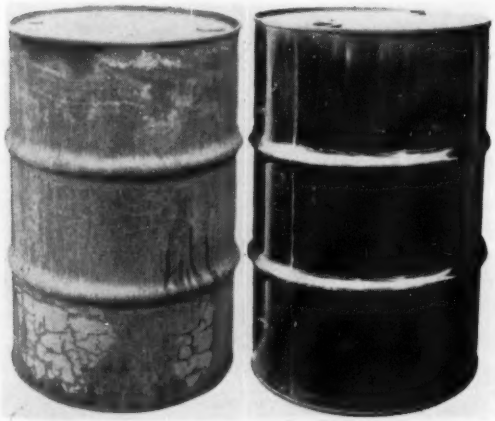

Fig. 1—(Left) Ordinary untreated steel drum after a few months' exterior exposure has lost the original paint finish and is covered with rust.
Fig. 2—(Right) A 55-gal. drum phosphate coated with Granodine prior to painting shows practically no rusting after a year's exposure in an industrial atmosphere.

Stage No. 7—Phosphate coating, "Granodine."

C. Final Rinsing

Stage No. 8—Rinsing, water.

Stage No. 9—Acidulated rinsing, "Deoxylyte."

The durability of both the phosphate coating and the final paint finish is determined largely by the thoroughness of dirt and scale removal prior to surface conversion. Alkali cleaning removes oil, grease, fingerprints, handmarks and other surface soil. Sulfuric acid pickling then removes mill scale.

Scale removal is especially important. Although this oxide layer is apparently tenacious, variations in temperature followed by rough handling or other punishment in even normal drum usage can dislodge the scale, causing a break in either the interior or exterior paint film, and thus contaminate the contents or leave the exterior surface vulnerable to progressive rusting.

After the drums are chemically cleaned, Granodizing converts the cleaned steel surface to a uniform, crystalline phosphate coating. The "Granodine" layer which is an integral part of the steel it covers is formed in a surface conversion process, and is therefore non-metallic. This makes it an ideal bond into which the paint finish is "keyed" or locked. After a rinse in clear water, "Deoxylyte" final acidulated rinsing neutralizes traces of alkali compound usually present in the water supply, and conditions the Granodized surface for optimum paint life.

The foregoing operations are carried out in a continuous multi-stage power spray unit, and the drums can be coated on both the inside and outside surfaces or on the outside surface only

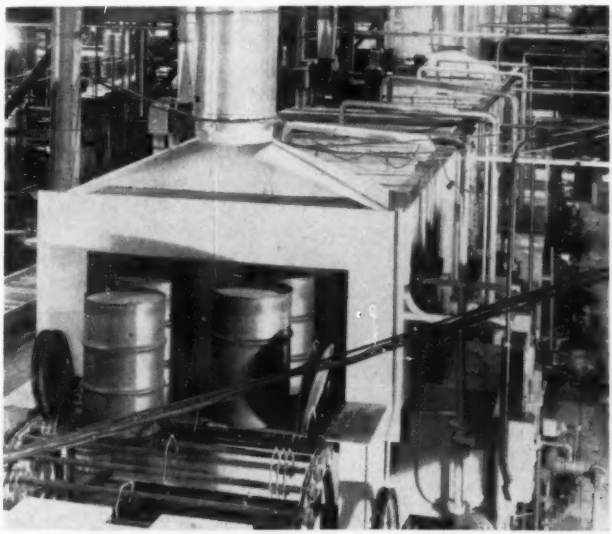

Fig. 3 — Drum bodies and ends leaving the nine-stage cleaning, pickling, and phosphatizing machine, designed and constructed by Morrison Industries, Inc., Cleveland, Ohio.

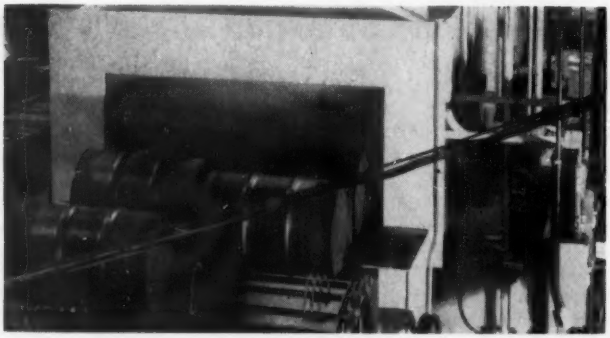

Fig. 4 — Drums which are to be cleaned and phospatized on the outside only are processed through the mechanical cleaning and phosphatizing machine, placed on the conveyor in the manner shown.

(Fig. 4), depending on individual customer's requirements. United with its integrated Granodizing process is prepared to supply phosphate coated and painted drums that meet the requirements of JAN-C-490 for a Grade I Finish. United drums are fabricated from all standard gauges of steel and are available in all sizes with special linings for a variety of products and decorated with any desired design (Fig. 5). Protective base and decorative paint finishes for drums are supplied by United.

Fig. 5—Completed open head steel drum fabricated at United Steel Barrel Company. Many different color combinations and decorative designs are available to drum customers.

(Photos courtesy United Steel Barrel Co., Philadelphia, Pa., and American Chemical Paint Co., Ambler, Pa.)

The integrated spray Granodizing process as used by United Steel Barrel Company provides several definite advantages. The "Granodine" phosphate coating forms a lasting bond between paint and steel and also serves as a positive barrier against rust creepage. In addition, the alkali and acid cleaning operations assure chemically clean interior surfaces. For the customer, especially in food, oil, chemical and paint industries, this is a definite assurance of cleanliness, durability and fine appearance.

Stripping Baked Phenolic Varnish from Cartridge Case Rejects

A MIDWEST company with a large contract for 105 mm. phosphatized steel cartridge cases was fac-

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ed with a reject problem amounting to some 400 cases a week. Stripping a baked phenolic resin from the cases and refinishing would eliminate final rejection.

The representative of the Magnus Chemical Company, of Garwood, N. J., was called in on this problem and sent samples of the cases to the Magnus laboratory. Many strippers and combinations of strippers in the Magnus line were tried, but the problem was not solved until a combination of a standard Magnus alkaline stripper with Magnus 751 was tried.

The working solution now being used for the stripping of these rejects is made up of 12 ounces of Magnus 61C and 6 ounces of Magnus 751 to a gallon of water. A 250-gallon tank containing this solution is heated to 200 deg. F., and cartridge cases in baskets are held in this hot solution for 20 minutes. They emerge completely stripped, and after cold water pressure rinsing are ready for refinishing and shipping.

Automatic Pickling of Appliance Parts

STEEL bodies, tops, and other parts for clothes washers and dryers are being processed in the world's largest spray pickling machine at the new plant of the Hotpoint Co. in Chicago.

Engineered and built by the B. F. Goodrich Co., Industrial Products Di-

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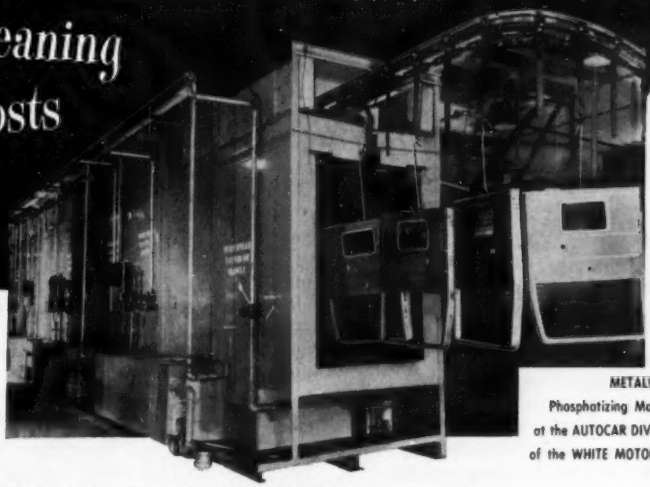

METALWASH Phosphatizing Machine at the AUTOCAR DIVISION of the WHITE MOTOR CO.

METALWASH Phosphatizing Machine provides superior pre-paint surface at PROVEN COST SAVINGS

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"... *with our* **METALWASH** *Phosphatizing Machine we have achieved substantial product improvement and considerable cost saving, together with elimination of paint failures in the field,*" states Robert Hood, Supervisor of Mfg. Research of the Autocar Division of the White Motor Co.

METALWASH VAPOR DEGREASERS *provide new speed, economy, durability.*

METALWASH SPOTLESS DRYER *eliminates hand-wiping of lacquered or plated parts.*

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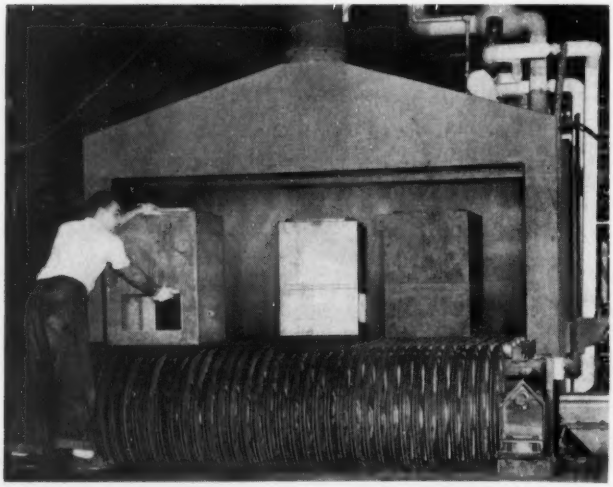
vision, Akron, Ohio, in association with Edward Curran Ltd., Cardiff, Wales, the machine is the second of its type to be built and installed at the Hotpoint plant. The first machine, a smaller model, has been in operation since October, 1953.

The 175-foot long tunnel machine automatically conveys the unfinished component parts through a series of compartments where the surface of the metal is cleaned and prepared for porcelain enameling. An endless conveyor made of rubber covered steel cables moves the parts through 11 separate operations in the machine. Interior surfaces of the machine are rubber lined to protect them against the highly corrosive action of the pickling acids.

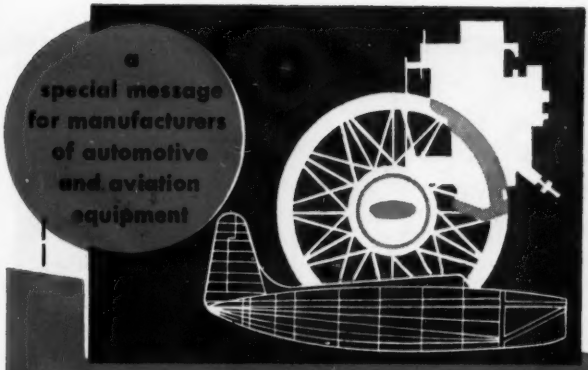
As the washer and dryer parts are conveyed through the new machine, a hot alkaline jet spray cleans the surface of the metal. This is followed by hot and cold water rinses, after which a spray of sulfuric acid removes rust and scale, and etches the surface to improve adhesion of porcelain to the metal. Following another water rinse, a thin film of nickel is deposited from a nickel sulfate solution sprayed on the metal surface at this point. A final spray of alkaline neutralizer prevents rust for several hours.

The acid spray section is located in the center of the machine, isolated by a water rinse curtain at either end; hence the machine is fume free. These water rinse curtains also perform a valuable function in returning the acid condensate to a reservoir for reclamation. Since this operation is free of fumes, it is not necessary to isolate it from other machinery.

According to the B. F. Goodrich Co., more uniform and better etching of the metal is obtained than that obtained from the dip method, resulting in a better finish on the metal. Automatic spray pickling machines of the B. F. Goodrich-Curran type are adaptable for mass production of enameled products of all kinds.



Appliance parts are placed on rubber-covered cables for cleaning and pickling in an automatic spray pickling machine.
(Photos courtesy the B. F. Goodrich Co., Akron, O.)



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ON ZINC AND CADMIUM you can get highly corrosion resistant finishes to meet any military or civilian specifications and ranging in appearance from olive drab through sparkling bright and dyed colors.

ON COPPER . . . Iridite brightens copper, keeps it tarnish-free; also lets you drastically cut the cost of copper-chrome plating by reducing the need for buffing.

ON ALUMINUM Iridite gives you a choice of natural aluminum, a golden yellow or dye colored finishes. No special racks. No high temperatures. No long immersion. Process in bulk.

ON MAGNESIUM Iridite provides a highly protective film in deepening shades of brown. No boiling, elaborate cleaning or long immersions.

AND IRIDITE IS EASY TO APPLY. Goes on at room temperature by dip, brush or spray. No electrolysis. No special equipment. No exhausts. No specially trained operators. Single dip for basic coatings. Double dip for dye colors. The protective Iridite coating is not a superimposed film, cannot flake, chip or peel.

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Solar Aircraft Uses Silicone Coating to Protect Jet Engine Combustion Chambers

AN operator at the Solar plant in Des Moines is shown here masking ends of combustion chamber with simple cardboard shields as he applies Sicon heat-resistant finish. Sicon, a product of Midland Industrial Finishes Co., Waukegan, Ill., is a silicone base finish that Solar engineers adopted as a protective spray finish for many Solar-built jet engine parts. Many of the aluminized metal parts are given an all-over treatment, to provide extra protection to surfaces which are subjected to 800 deg. F. temperatures.

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Precleaning in Tumbling Barrels

AN interesting variation of the Emulso-Dip method of precleaning metal parts prior to electrocleaning has recently been reported.

In the Emulso-Dip cleaning method, developed by the Magnus Chemical Company, of Garwood, N. J., parts are dipped in (or sprayed with) a cleaning solution made up of one part Magnusol concentrate and eight parts kerosene or safety solvent. This solution penetrates rapidly into oily, greasy deposits, loosens their bond to the metal, and puts them into condition for complete removal when the work is subsequently sprayed with a

HONITE field engineer helps manufacturer save up to 50% on barrel finishing

Argus Cameras, Inc., Ann Arbor, Michigan, had been using barrel finishing since 1945—processing 175 different kinds of zinc, aluminum and steel camera parts such as those shown above. Last year HONITE Field Engineer D. J. Jones supervised a change to the HONITE Barrel Finishing Method.

Sample results? Recommended HONITE procedure helped cut finishing time on zinc die-cast levers from 36 hours to 15 hours—a time-saving of 58%.

Costs of deburring and polishing camera-case castings were reduced from $.118 per unit to $.059—with rejects cut from 54% by the old method to 7% with the HONITE method.

Now—the company has found that the HONITE method cuts costs, increases production on intricate parts of all sizes. As many as 500,000 parts are processed weekly.

Your HONITE Field Engineer or nearby HONITE distributor is a barrel finishing expert who can help *you* cut barrel finishing costs, too.

For free copy of "3M Barrel Finishing" Manual, write Minnesota Mining and Mfg. Co., Dept. PF-124, St. Paul 6, Minn.

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pressure stream of water. The heavy emulsion formed when the Magnusol solution mixes with water carries off all the dirt, including metal particles and solid dirts which are not removed by conventional degreasing methods.

The variation in procedure was developed in a large job plating concern which faced a two-shift, five-day week cleaning operation on steel transformer cases, ranging in size from 2 by 2 by 3 inches to 8 by 8 by 10 inches. These cases have to be tin plated ultimately, and the precleaning operation is necessary to put them in proper condition for electrocleaning before plating. They are received in a dirty condition, full of drawing compound, and with considerable rust and heat treating scale.

The unusual feature of the operation is the use of tumbling barrels instead of cleaning tanks. Two horizontal tumbling barrels are mounted, each above a 70 gallon solution tank. One tank contains the Magnusol solution, unheated. The other tank contains a solution of Magnus D-Scale-R for the subsequent removal of rust and heat scale, after the precleaning operation.

The dirty cases are loaded into the first tumbling barrel, and the Magnusol solution is pumped from the tank below into the barrel until the solution comes up to the level of the loading doors. The barrel is then covered and rotated at about 35 r.p.m. for 20 minutes. At the end of this period the barrel is drained into the solution tank, and the cases, after dumping on screening for adequate draining, are flushed off with a pressure water spray

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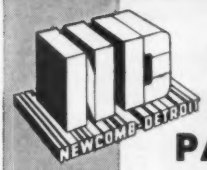

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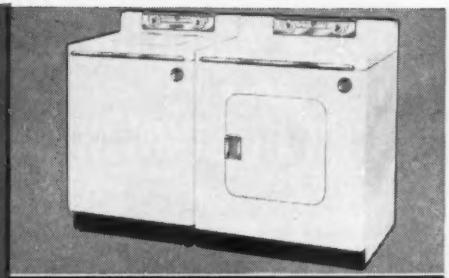
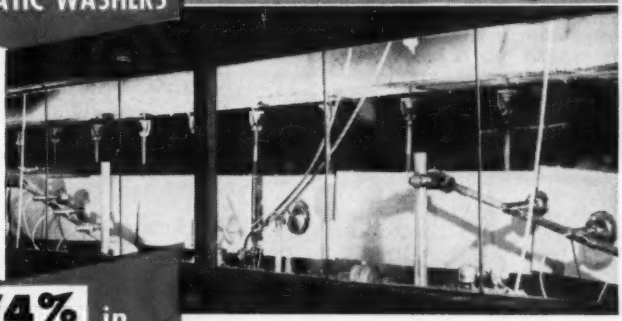
with the
RANSBURG NO. 2 PROCESS
Paint mileage jumps
84%
in the finishing of
G-E AUTOMATIC WASHERS





...and **74%** in
finishing G-E DRYERS

Production is increased and quality of the work is improved over former hand spray method

● When General Electric formerly hand sprayed their home laundry equipment—automatic washers and dryers—they painted 9.74 washers with a gallon of paint. Now, in the new and modern plant at Appliance Park, Louisville—where they're using the Ransburg No. 2 Process—they get 17.97 units per gallon of paint. An increase of 84%!

And, where they formerly got 5.49 dryers per mixed gallon of finish, now—with the Ransburg No. 2 Electrostatic Spray Process—they get 9.56 dryers per gallon of paint. An increase of 74%!

Along with increased production, G.E. is getting a more uniform, higher quality finish. Another typical, on-the-job-example of the unmatched efficiencies of the Ransburg No. 2 Process of electrostatic spray painting!

Want to know what Ransburg Electrostatic Processes can do for you in your finishing department? Ask about the complete facilities for test-painting YOUR products—under simulated production conditions—in Ransburg laboratories.

Ransburg **ELECTRO-COATING CORP.**
Indianapolis 7, Indiana

RANSBURG

at tap temperature before loading into the second barrel. The cases are open at one end, and have an opening at the other end for easy draining.

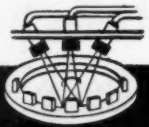
Except for rust and heat treating scale, the cases are completely clean of drawing compound, oil, grease and embedded metal particles. The next stage removes the scale and rust.

For this purpose, Magnus D-Scale-R is used. This is an inhibited acid cleaner which attacks rust and scale, but is harmless to the metal itself. The solution tank for D-Scale-R is made up of 8 ounces of D-Scale-R per gallon of water, and heated to 160 deg. F. Precleaned cases are loaded into the second barrel, the solution is pumped in and the covered barrel rotated for 30 minutes. At the end of this period the cases are rinsed with water after the barrel has been drained back into the solution tank and the drained units have been removed from the barrel. The next step is the electrocleaning operation in which the transformer cases, completely free of rust and scale, are cleaned to a chemically clean condition, prior to tin plating.

The Magnusol cleaning solution is used for weeks without makeup. In the D-Scale-R tank, a small amount of the cleaner is used as makeup once a week, for three weeks, after which a new solution is made up.

which of these DEBURRING PROBLEMS are yours?

- ☐ Machining slivers
- ☐ Feather edges
- ☐ True burrs
- ☐ Low drilling crowns
- ☐ Associated chips
- ☐ Light extruded metal
- ☐ Tool fuzz
- ☐ Gear teeth
- ☐ Deep holes
- ☐ Spirals
- ☐ Recesses
- ☐ Slots
- ☐ Threads



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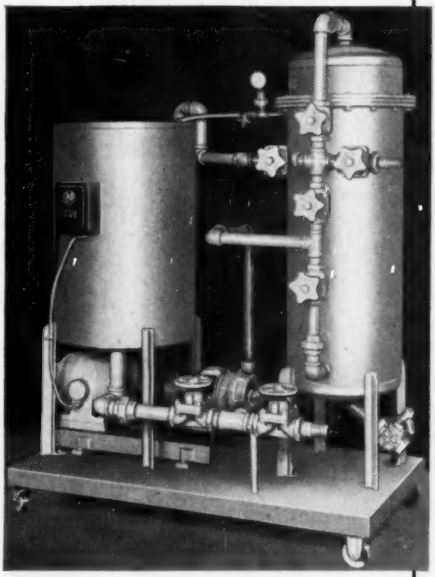
WITH WAGNER BROTHERS FILTERS



YOU CAN STOP SOLUTION WASTE AND MINIMIZE REJECTS CAUSED BY IMPROPERLY FILTERED SOLUTIONS.

HOW? You can be sure of your solutions (and plating quality) when solutions are filtered through a Wagner Brothers Filter. It removes all suspended impurities and sludge down to 1/10 micron — and, because of a higher effective flow rate than any other equipment of comparable size, it filters faster at lower cost.

WHY? Wagner Brothers Filters are superior to ordinary filters because of better design and construction. Permanent membranes, caked with a few cents worth of filter-aid (diatomic particles), furnish the filtering medium. The membranes are there to stay. You have no problems of replacing bags, sheets or pads—there are none. Imagine what you can save on maintenance.

Cleaning is simply a matter of turning a few valves, allowing the air bump backwash to do all the work of flushing waste residue. There is no manual cleaning labor or disassembly required—and, the whole cleaning process takes only 20-minutes.

This highly efficient filter is available in 8 standard models, with iron, stainless steel or Velon lined tanks. Membranes furnished are either stainless steel, porous stone or porous carbon, depending upon application. All models are platform mounted on casters for ease of movement. Capacities of standard models range from 560 to 15,000 GHP. Of course, Wagner Brothers will also design and build specials to suit your needs.

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News about UNICHROME

Trade Mark

MATERIALS FOR ANY STOP-OFF JOB

Any plater who has a job for stop-offs has a ready source of information on all important types in United Chromium. Available are wax-type materials which can be reclaimed; lacquers which apply easily and dry fast; tape for fast, snug wrapping. Plastisol compounds, too, for molding into stop-off shields. Even a stop-off for nitriding and carburizing operations – Unichrome Pyrophosphate Copper Plating, which many companies consider the outstanding process for this job.

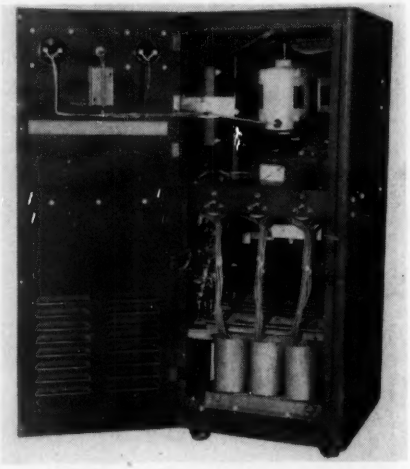
HELPFUL HINTS

by "Mr. Cost Cutter"

With the new sprayable Unichrome Plastisol Coating 5300, platers can apply a *seamless* coating, and insulate and protect tanks. One large automotive company got this protection on both inside and outside of electrocleaning and rinse tanks for less money than formerly spent just for interior linings built up from sheet materials.

Cuts Chromium

Plant saves with Unichrome



Source of power—and savings

Equipment for complete plating installations supplied by United Chromium is, from experience, designed for efficient operation and genuine economy. Unichrome Rectifiers, for example, are unusual in design of rectifier stacks, transformer ratings, wiring and insulation details—giving long service at high efficiency in plating and anodizing.

Salts Consumption by 50%

money while it improves results SRHS Chromium Plating Solution

RESULTS achieved by an automotive company tell another story of major improvement in chromium plating operations.

The advantages of the Unichrome SRHS Chromium Plating Solution were first carefully checked by this company's critical research division. Shortly thereafter, on the basis of the test results, the SRHS solution replaced the ordinary solution in a fully automatic plating machine.

THE RESULTS

All benefits were confirmed. Loss by dragout dropped since the new solution was more dilute. Loss by spray carried off in the ventilators diminished because the higher efficiency of the SRHS bath reduced the wasteful gassing which causes spray. In fact, records reveal that consumption of chromium plating salts used to maintain the bath were cut *more than half*. In addition—faster plating speed was obtained; also brighter deposits, and better coverage.

This company now has every chromium plating tank in the plant working with, and saving with, Unichrome SRHS Chromium.

OTHER ADVANTAGES PLATERS LIKE

SRHS Chromium presents platers with a bath where important constituents are automatically controlled for best plating balance. This assures a more foolproof operation and helps reduce rejects. Moreover, the bath provides the easiest and most economical way to increase plating capacity—inasmuch as it cuts plating time as much as half, and needs less power to plate a given work load.

Write for Bulletin SRHS-2 for more details. Or better yet, ask for a United Chromium engineer to survey your requirements and offer recommendations.

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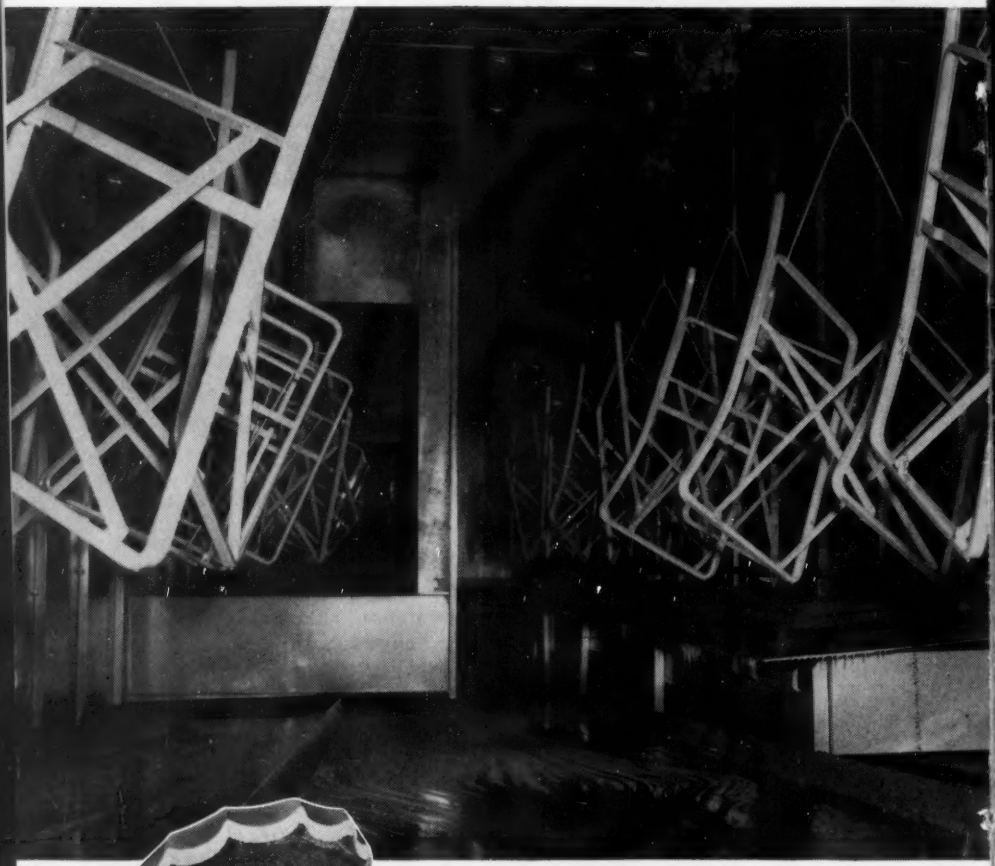
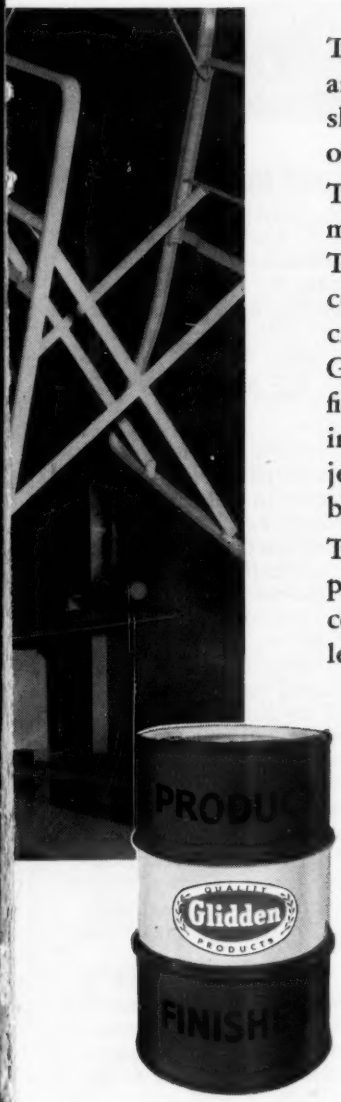


Interior of flow-coating applicator in vapor drain section.

Gets Tough Finish



There is nothing casual about the NUPON primer and NUBELITE enamels used by the Troy Sunshade Co. of Troy, Ohio, on their top-quality line of modern indoor-outdoor furniture.

These finishes have been custom-built to resist moisture, rain and long exposure to sunlight. They adhere tenaciously to wrought iron and cold-rolled steel in all temperatures without crazing, chipping or peeling. In addition, these Glidden finishes make possible the simplified finishing program now used by Troy which has increased production, reduced handling and rejects, and has shortened paint application time by nearly 60 percent.

This story of improved finishes and cost-saving procedures is typical of many growing out of the cooperation of Glidden Technical Service with leading manufacturers.

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Sisal Buffs

Hanson-Van Winkle-Munning Co., Matawan, N. J., has announced four major improvements in its sisal buffng wheels that make for longer wear and faster cutting. The improvements include: treatment with an impregnating material, new center construction, improved sewing, and use of a stronger sisal cloth.

Called Binderized Bias Sisalweev Sections, the new buffs are impregnated with the same organic material that is used as a binder in buffing compositions. The impregnated binder improves the adherence of composition to buff, besides lubricating and making the buff more flexible. With the binder, buffs cut faster, last 30 per cent longer, the manufacturer states.

To improve wear, the new buffs are sewn under greater tension with heavier thread, and the outside row of sewing is now run closer to the periphery of the wheel; this gives greater strength to the sisal cloth.

Wear is further improved by the use of a woven sisal cloth that has been mangled—heavily rolled and compressed. Final improvement includes precision knife-trimming of the periphery to produce a finer and sharper-cut edge.

Sections ⅜ inch thick with either 5 or 7-inch centers, untreated or treated with the Binderizing process, are available in a full range of sizes. Spiral sewing can be applied with spacing as desired.

For additional information, write to Hanson-Van Winkle-Munning Co.,

Church St., Matawan, N. J., or circle No. 1 on Reader Service Card inside back cover.

Spray Gun Control Stand

A flush panel spray gun control stand has been introduced by Ashdee Electrostatic Products, Inc., Homewood, Illinois.

The controls for each spray gun are mounted directly opposite the gun. Any adjustment for any gun is completed quickly and easily. The air transformer and timing devices for triggering the spray guns are housed within the cabinet. All inside tubing is copper and stainless steel.

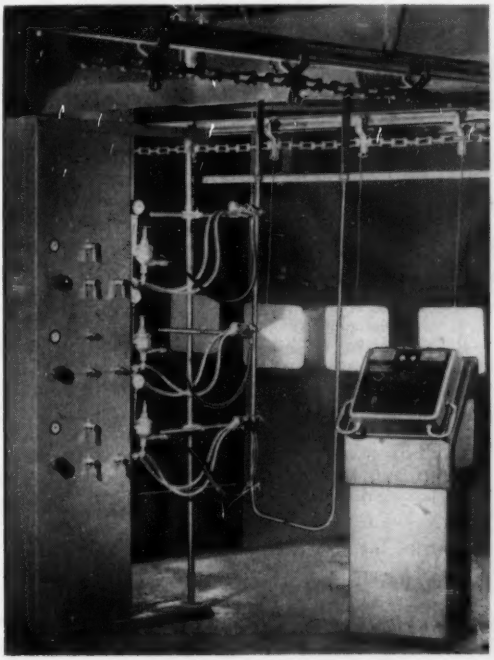
This control cabinet permits intermittent-spraying or skip-spraying, with quick model-to-model changes, as required, for maximum finishing economies by Ashdee Electrostatic Painting Systems.

For detail information, address Ashdee Electrostatic Products, Inc., 18029 Dixie Highway, Homewood, Illinois, or circle No. 2 on Reader Service Card inside cover.

Plating Barrel

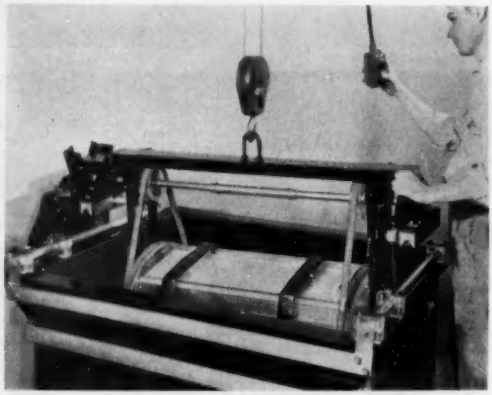
A plating barrel design offering a high rate of plating production with savings in maintenance manhours is claimed for the new Gill-Singleton Plating Barrel, announced by The G. S. Equipment Company.

The cylinder is suspended in the tank from the superstructure by 2 equal-length V-belts running from drive shaft pulleys to the grooved cir-



Ashdee Spray Gun Control Stand

Gill-Singleton Plating Barrel



cumferences at both ends of the cylinder. The belts support the weight of the cylinder while transmitting the power for rotation. Belts are made of an acid, alkali and stretch resistant composition, with a 2000-pound capacity, and heat-resistance to over 200 deg. F.

Cathode contact is made by a self cleaning inverted V-block, 12 inches long, on each end of the superstructure. These provide ample contact area and carry greater current flow per load. As the superstructure is lowered on the tank, a guide channel directs it automatically into proper operating position, and firmly seats the inverted V-blocks on the round cathode rods located on the tank rim.

Problems of dismantling and assembly have been overcome by the use of self-locking U-plates fitted over the floating hubs at each end of the cylinder. Sliding-out the U-plates unlocks the assembly permitting quick cylinder interchange or cleaning and replacing danglers.

The Gill-Singleton cylinder is of "H-T Sincolite," heavy-ribbed design and fusion-welded construction throughout. It is noted for its rugged durability and long life, and has been proven suitable for all processing in acid or alkaline solutions at temperatures up to 200 deg. F., the manufacturer states. No parts other than neoprene rubber and H-T Sincolite are exposed to the plating solution.

The Gill-Singleton Plating Barrel is offered in all standard sizes and in multiple units. Complete construction and performance details are presented in the firm's new Bulletin GSB-101 now available from G. S. Equipment Co., 5317 St. Clair Ave., Cleveland Ohio, or by circling No. 3 on Reader Service Card inside back cover.

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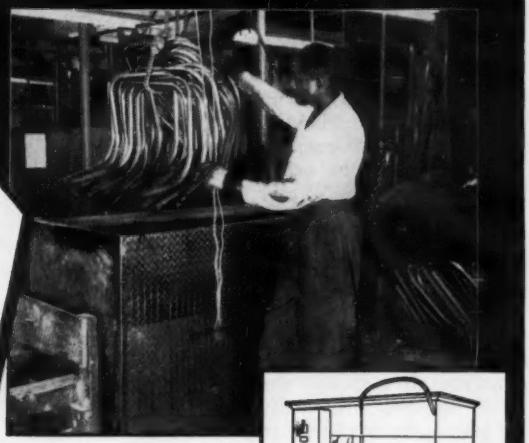

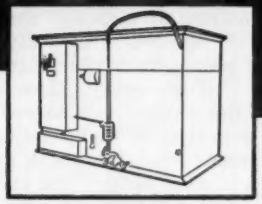

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NO MATTER what your finishing operations are, you must be sure of perfectly clean surfaces for the best results. Built to operate at the high vapor temperature of 250.2°F, Phillips degreasers assure 30% more cleaning action because more solvent contacts the metal. Industrial processing compounds with relatively high flow points dissolve rapidly and are completely removed in Phillsolv vapor. Automatic thermostat control makes Phillips degreasers reach peak efficiency faster, consume power only when needed, and eliminate waste consumption. Phillips units operate with extra economy, have the greatest cleaning power, and assure chemically clean metal surfaces. Complete line of standard and special models meet all requirements. Check with Phillips today on your metal cleaning problems.

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"In Canada Phillips equipment is manufactured under license by Williams Tool Corporation of Canada, Ltd., Brantford, Ont."

Paint Spray Booth

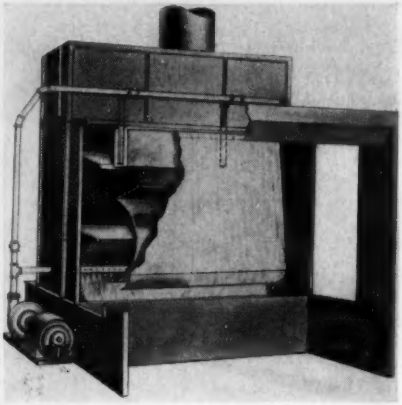
The Despatch Oven Company of Minneapolis has announced a water wash spray paint booth that is claimed to be very efficient in removing paint particles from the exhaust air.

The "Cleanaire Water Wash Paint Spray Booth" features a scrubbing chamber with a specially-designed spray header mounted within two curved baffle plates. When water is pumped into the header it sprays forth in three directions from three rows of orifices and strikes the baffle plates, building up a violent spray turbulence that removes practically all particles of paint, the manufacturer claims.

Uniform gravity flow of the booth's water curtain is achieved by a supply tank that is easily adjustable to the proper level. The tank supply header is located outside the exhaust plenum chamber for easy access. Two vertical feeder lines, which empty near the bottom of the tank, do not interfere with tank adjustments.

Because of the booth's design, less horsepower is required to draw the required volume of air through the booth and out the exhaust stack, the manufacturer stated.

For more information write to Despatch Oven Company, 619 8th Street Southeast, Minneapolis 14, Minnesota, or circle No. 4 on Reader Service Card.



Cut-a-way of Cleanaire Water Wash Paint Spray Booth

Polishing Machine

A new series of Tandem Roll Horizontal Polishing Machines has been added to the Central Machine Works' line of vertical and horizontal machines. These machines feature electro-hydraulic controls, a patented hydraulic contour device for automatically following the contours of shaped pieces, and a tandem roll feature (Fig. 1) which permits rough cut, or cut down, and finishing with only one work setup. The machines are design-

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ed to handle extrusions of all types, sheets, plates, rods, tubing and many odd shaped items (Fig. 2).

The polishing rolls are powered by

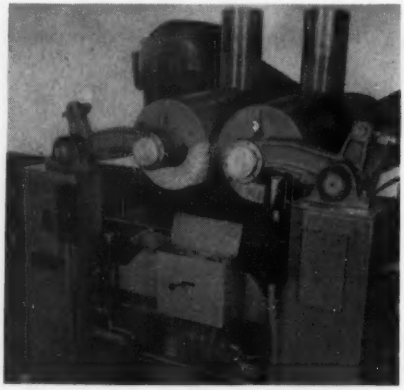


Fig. 1—Closeup view of tandem rolls and central operator's station on HM Series Tandem Roll Polishing Machine.

motors of ample capacity. Stroke is from two inches to full capacity of machine in stepless increments. The work or fixture table is available in any width or length depending on the size of work to be finished, and may be oscillated crosswise as desired.

The tandem roll machine received an Award of Merit at the Court of Merit recently conducted by the Associated Industries of Massachusetts at the annual meeting.

For further data circle No. 5 on Reader Service Card inside back cover.

Bright Zinc Process

Stevco Bright Zinc Process has been developed by Frederic B. Stevens, Inc., Detroit 16, Mich., for Stevens automatic barrel plating as well as manual and semi-automatic horizontal barrel machines. This process is designed to produce a bright zinc plate over a wide range of current densities such as are found in barrel plating.

The process is composed of water soluble Stevco Bright Zinc Salt and Stevco Liquid Zinc Brightener (with tarnish resister).

Close grain structure in the ductile bright zinc deposit, convenience in handling, high conductivity resulting in fast plating, good distribution of plate and excellent anode corrosion are claimed by the manufacturer for this process.

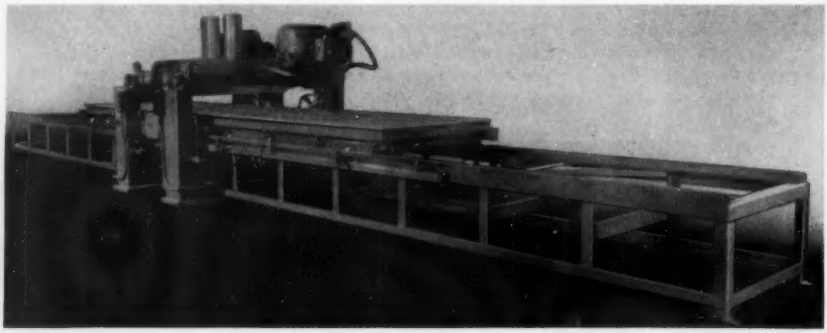
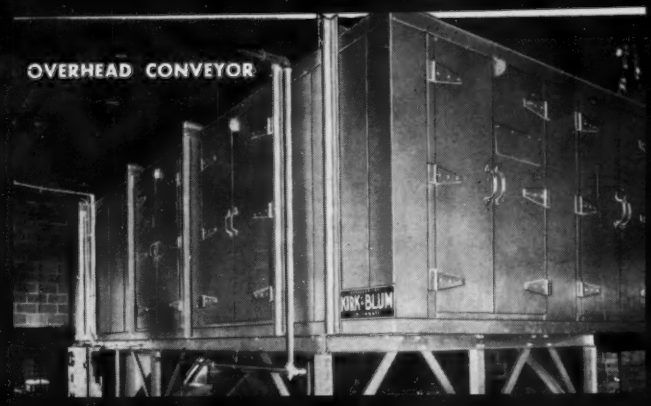


Fig. 2—Overall view of Central Machine Works' HM Series Tandem Roll Polishing Machine.

BELT CONVEYOR



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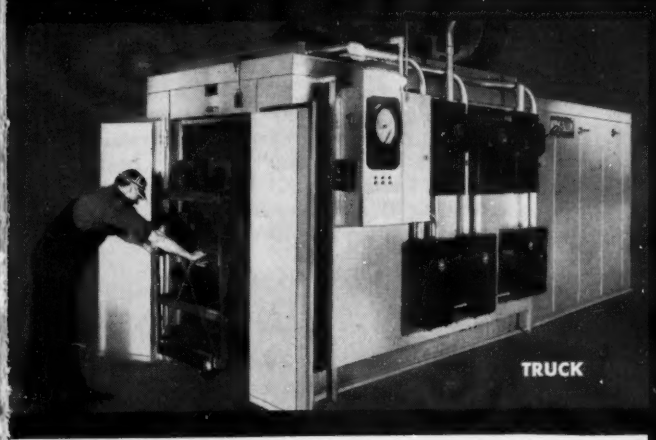


TRUCK

KIRK AND BLUM INDUSTRIAL OVEN

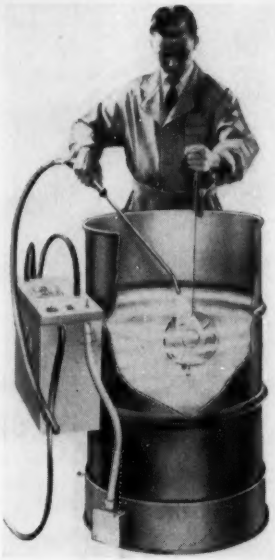
The resultant surface can be bright dipped or given a chromate treatment if called for in the specifications.

Further data and instructions on the use of Stevco Bright Zinc Process may be found in Stevens Technical Bulletin P-130, or obtained by circling No. 6 on Reader Service Card inside cover.

Barrel Degreaser

Baron Industries reports fast cleaning of oily parts with the Super Barrel vapor spray degreaser. An important feature on this degreaser is the motor driven pump and spray lance which is supplied for flushing parts with solvent to facilitate cleaning.

Rapid parts cleaning is accomplished with non-flammable trichlorethylene vapors. The oily parts are lowered into the vapor zone and automatically cleaned. When removed, they are warm and dry, ready for further processing.



Cutaway View of Barrel Degreaser

Compact in design, the Super Barrel is ideal for use as the sole metal cleaner in shops with small production, or as a "spot" degreaser in large plants. The Super Barrel is available with either gas or electric heating. A standard 55 gallon galvanized drum is used as the degreasing chamber. Further information and literature is available from Baron Industries, 241 W. Ave. 26, Los Angeles 31, Calif., or by circling No. 7 on Reader Service Card inside cover.

Rubber Liner for Drums

The production of removable rubber drum inserts, under the trade name of "Drumserts," for standard 55 gallon

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drums has been announced by Automotive Rubber Company, Inc.

These rubber inserts are preformed, independent linings made of ARco compounded neoprene or sheet rubber. "Drumserts" can be inserted in any standard drum. The rubber insert is merely set in the drum and the "lip" provided on the insert is lapped over the top of the drum and pulled taut. This permits the "Drumsert" to grip the drum and maintain a stationary position regardless of handling.

ARco engineers state the "Drumserts" render any standard 55 gallon drum or barrel capable of holding acids and other corrosive materials. It is claimed that with these ARco rubber inserts any drum can be used for electroplating solution makeup; for acid dip, pickle, strip operations; for solution storage; as test tanks, and for laboratory experimental purposes. These rubber inserts can be removed from drums by peeling the "lip" that laps over the sides of the drum. Along with these rubber inserts, ARco produces rubber "snap-on" lids for drums.

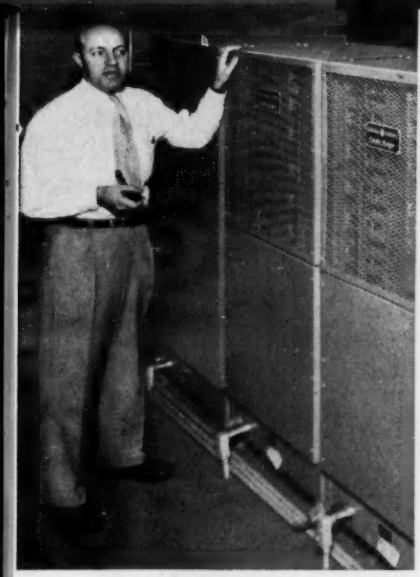
Additional details on ARco "Drumserts" can be obtained by writing to Automotive Rubber Company, Inc., 12550 Beech Road at P. M. R. R., Detroit 39, Michigan, or by circling No. 8 on Reader Service Card inside back cover.

Silicate Protective Finish

A line of silicate protective coatings which can be fused to any ferrous metal at moderate temperatures has been announced by Vitreco, Inc. The protective coating will be sold exclusively by Allied Porcenell, Inc., Phoenix, Arizona, through its national sales office in Waukegan, Illinois.

Said to provide permanent protection against rusting and corrosion, the new silicates can be applied by spray, brush or dipping and fired at temperatures from 900 to 1200 deg. F., depending upon the type of finish desired. In substance, Porcenell is similar to porcelain enamel, but is more easily applied because of the low firing temperatures required. Surfaces suitable for Porcenell are reported to include sheet, plate, cast, wrought and malleable iron, and high carbon steels.

Rubber Liner Being Inserted in Drum



G-E RECTIFIERS located in a separate room leave more space for plating tanks, and avoid the corrosive atmosphere.

INSPECTING THE CONTROL STATION at one of the tanks where piston rings are being chrome plated. The operator's control station permits regulation of the voltage level at each tank.

G-E Plating Rectifiers Help to Triple Capacity of Plating Room at Muskegon Piston Ring Co.

New General Electric plating power supplies have enabled the Muskegon Piston Ring Company of Muskegon, Michigan, to triple its plating capacity in the same working space. By mounting copper oxide rectifiers on an enclosed balcony outside the building, with a separate operator's control station at each plating tank, Muskegon was able to use the entire floor space for plating tanks.

COMPLETE FLEXIBILITY of plating room arrangements is provided by General Electric rectifier units. Not only is it possible to install the rectifiers away from the plating room, but the rectifiers are kept clear of the corrosive plating room atmosphere as well.

LESS MAINTENANCE is required for G-E rectifier plating power supplies. The scarcity of moving parts means less maintenance, since only the cooling fan requires lubrication. Installation costs are less, since G-E plating rectifiers require no special foundation.

Operating costs are lower, because G-E rectifier units assure you of the most efficient application of either copper oxide or selenium with the proper circuit for each voltage rating.

AUTOMATIC REGULATION is available as an integral part of G-E plating power supplies, or can be added later to manually-controlled units. In addition to manually and automatically-controlled units, economical 12-volt barrel platers are available in ratings from 500 to 2000 amperes.

ADDITIONAL INFORMATION on any of General Electric's plating power supplies is available from any authorized G-E agent, or by writing Section 464-16E, General Electric Co., Schenectady 5, N. Y.

GENERAL ELECTRIC

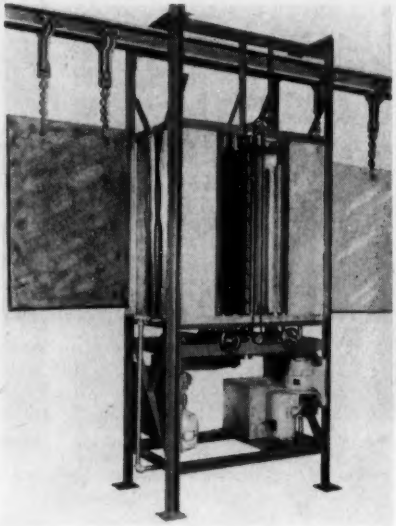
The porcenells are fireproof and present strong scratch resistance, permanent color, and do not react to moisture or any corrosive agent normally found in the atmosphere, the manufacturer states.

Porcenell also serves as a corrosion proof base coat over which any paint can be applied.

For further details write Allied Porcenell, Inc., 851 South Market Street, Waukegan, Illinois, or circle No. 9 on Reader Service Card inside back cover.

Cathode Plate Scrubbing Machine

An industrial scrubbing machine that cleans polished metal sheets before they are plated has been developed by the Fuller Brush Company.



Cathode Plate Scrubber

Called the Cathode Plate Scrubber, the machine removes residue resulting from the buffing of cathode plates that are to be coated in an electrolytic deposition process, and ensures that the buffed plates will have the clean surface essential for proper adhesion of the metal deposit.

The metal plates, suspended by hooks, are carried through the Cathode Plate Scrubber by an overhead monorail conveyor. A spray and cylindrical scrubbing brushes scour off residual material, and a clear water rinse leaves the plates clean as they leave the machine.

Powering the scrub brushes are two three-quarter horsepower, drip-proof motors, which turn the brushes by means of a chain drive. A one-quarter horsepower variable speed motor for the feed roll drive moves the cathode plates through the machine at a speed of from 2-2/3 to 8 feet a minute.

KEEP SPRAY BOOTHS SAFER FROM FIRES!

with the original non-inflammable

BATES BOOTHCOATING #4 (for dry booths)
BATES BOOTHCOATING #5 (water type)
BATES FLOORCOATING (for floors)
at 1940 prices

- Makes frequent cleaning easy
- Paint peels off in sheets
- Saves time and labor in applying
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New Low Prices

15 gallon drums 90¢ gallon
55 gallon drums 80¢ gallon*
F.O.B. Buffalo, N. Y.
***55 gallon drums only prepaid $1.00 gal.**
BATES WATER WASH COMPOUND
300# drums 12¢ lb. Buffalo

Our Money-Back Guarantee Is Your Assurance Of Top Quality and Satisfaction

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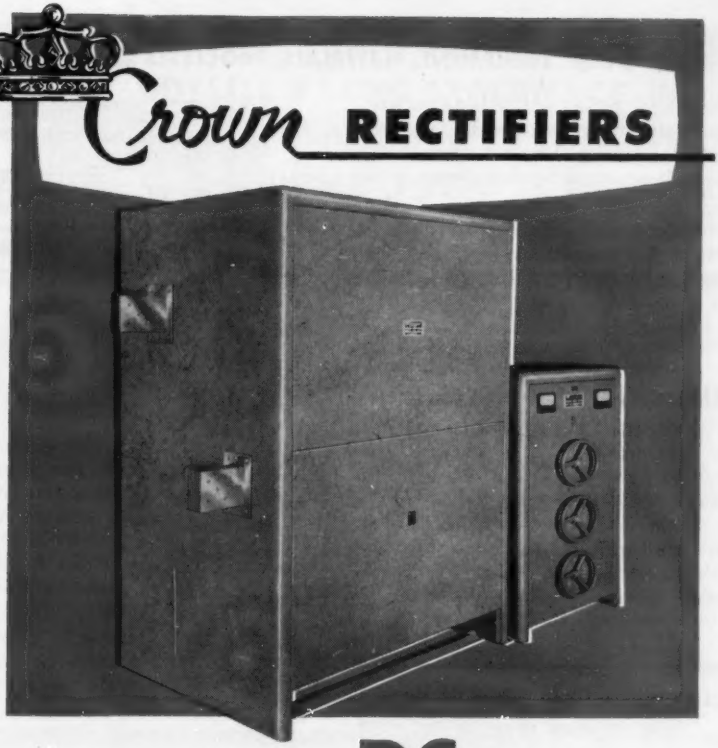
1231 Seneca St. • Buffalo 10, N. Y.

Crown RECTIFIERS



Dependable DC Power
FOR ELECTRO-CHEMICAL REQUIREMENTS

Whether your application requires 100 ampere output or 50,000 ampere output, manual control or automatic regulation, there is a CROWN SELENIUM RECTIFIER to do the job. From the Basic Power Cubicle for minimum requirements to the completely Automatic Magnetic Amplifier Unit for complex operations, CROWN RECTIFIERS, thoroughly engineered for *trouble free performance*, ruggedly built for *extra long life*, will provide *dependable DC power* under the most severe operating conditions.

Contact your nearest authorized dealer for information or write for standard rating brochure. Technical and specific application information furnished on request.

Crown SELENIUM RECTIFIERS

MANUFACTURED BY

CROWN CHEMICAL AND ENGINEERING CO.

4722 Worth Street, Los Angeles 63, California

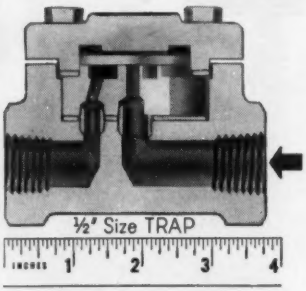
The spiral coiled scrub brushes are forty-seven inches long and have stainless steel backing. The fill consists of 0.007 inch crimped black nylon.

For information write to: Fuller Brush Company Machine Division, Hartford 2, Connecticut, or circle No. 10 on Reader Service Card inside back cover.

Simplified Steam Trap

A steam trap with only one moving part, its valve head, has been announced by Sarco Co., Inc., New York, N. Y.

A single valve is used to open and close simultaneously the inlet and outlet of the Sarco steam trap. The valve remains open so long as only water or air pass through the inlet, but when steam passes through the inlet and into a chamber, construction of this trap is such that the greater velocity of the steam carries it to a chamber on the opposite side of the valve. This causes a pressure buildup, which is used to actuate the valve, closing both inlet and outlet. It remains closed until condensation decreases the pressure, at which time the cycle can repeat.



Thermodynamic Steam Trap

It is able to close tight on no load, and can operate against back pressures up to 50 per cent of its inlet pressure, the manufacturer states. The trap works well with high or low loads, and is constructed of materials such that it is able to withstand corrosive condensate and physical conditions encountered, claims the manufacturer.

For further information write to Sarco, Inc., Dept. P, Empire State Bldg., New York 1, N. Y., or circle No. 11 on Reader Service Card inside back cover.

Abrasive Cloth

"Gritcloth," a sanding fabric consisting of abrasive imbedded in a tough, open mesh cloth, is available from Bay State Abrasive Products Co., Westboro, Massachusetts. Material removed dur-

Accurate results in a few seconds right at your tank, with

"pH TEST PAPERS"

To test Nickel, Silver, Brass, Copper, etc. For Electrometric or Colormetric results.

Let us know the pH range you need for this MOST PRACTICAL & INEXPENSIVE METHOD FOR DETERMINING THE pH VALUE IN **ACID** & **ALKALINE** SOLUTIONS.

Cheerfully we will mail complete details— We will also answer any specific problems— No obligation!

Another PROGRESS item in the line of

THOR CHEMICAL & EQUIPMENT CORP.

77 South 5th Street Brooklyn, New York
Telephone EVergreen 8-5502

BUY UDYLITE'S LONG EXPERIENCE IN BARREL PLATING APPLICATIONS

GET THE EQUIPMENT THAT IS TAILORED TO YOUR SHOP PRODUCTION

Since 1936 when Udylite introduced the first standardized plating barrel with interchangeable parts, it has been on the move through research, engineering and production.

Through these 18 years the Udylite Barrel Plater has progressed with hard rubber, bakelite, melamine and lucite and now the latest development, Tempron. Over 8,000 barrels have been put into customer use.

Each new material, every new engineering detail and every planned operation in this never ending parade of progress has been long studied and operation tested for months before offering to industry.

All Udylite Barrel Equipment is engineered, manufactured and customer plant planned in complete coordination with Udylite Electrical Engineers and Laboratory Technicians.

Regardless of the size of the installation or the equipment involved, Udylite experience and coordinated know-how are always the plus values of incalculable worth—and they are free.

You owe it to yourself—when you have small parts plating problems—to consult Udylite.

Write for Bill Jackson's article "Horizontal Plating Barrels and Auxiliary Equipment."

ing sanding with this abrasive cloth is able to pass through the open mesh, so that the usefulness of this abrasive is impaired very little by "clogging."

The material, which is said to have unusually long life, may be used wet or dry for smoothing wood or metal surfaces, and may be cleaned by rinsing in water.

Available in grit sizes from 100 to 600, it may be obtained as sheets for any vibrating sander, discs for any size disc sander up to 16 inches, and rolls of 25 yards in any width up to 27 inches.

For further data circle No. 12 on Reader Service Card inside back cover.

Roller Coating Process

A process for coating plywood, lumber, and other flat surfaces with sealers or finishes has been announced by Gasway Corporation, Chicago, Illinois.

The method, called Rollacoating, is used for coating the base material mechanically, by feeding it through a machine that rolls the liquid finish on the work.

In practice, the user Rollacoats a clear sealer on wood panels as they are received at his plant, and then puts the panels into work or storage. This process helps to keep the panels from being soiled or stained while being installed and so saves finishing time after final assembly. Better flow of materials is also obtained in using this method.

The manufacturer states that the Rollacoat process helps to eliminate waste of finishing material and insures a controlled film thickness. For further information, circle No. 13 on Reader Service Card inside back cover.

Industrial Cleaner

Petroclean D-25, a concentrated, emulsifying-type, industrial liquid cleaner for the purging of fat, oil and grease, has been developed by The Whistlclean Corporation, New York, N. Y. The cleaner is said to blend readily with any of the petroleum hydrocarbons — such as mineral spirits, varsol, varnolene or Stoddard's solvent, to form a stable emulsion with water. Diluted with such solvents, Petroclean D-25 may be employed for manual cleaning operations, in soap tank or dip cleaning methods, or in pressurized spray systems.

Petroclean D-25, it is claimed, will not attack painted surfaces.

The new cleaner is also recommended for use by metal fabricators in removing soils formed by buffing and polishing operations. The manufacturer states that Petroclean D-25 imparts a rust preventive film to machined parts as it cleans.

For descriptive literature on

Model 32-B Gasway Rollacoater

in minutes... peel spray-booths clean

"LIQUID ENVELOPE"

The ORIGINAL Time-Tested Strip-Coating

It's the quick, labor-saving, safe way to keep booths firesafe, better illuminated, better ventilated.

"LIQUID ENVELOPE" is non-toxic . . . does not contain dangerous chlorinated solvent. It will not corrode metal walls or ventilating ducts. And it's flame proof and fireproof . . . dry film will not burn or support combustion.

Costs less than hand-scraping or grease-papering as hundreds of plants have proved to their complete satisfaction year after year.

NEW-USERS SAMPLE OFFER

5-gallon test-sample at the drum-lot price. Order now from nearest distributor—start saving soon.

BETTER FINISHES & COATINGS, INC.

268 Doremus Avenue, Newark 5, New Jersey
122 East 7th Street, Los Angeles 14, California

DISTRIBUTED BY

Abrasive & Supply Co., Detroit, Mich.
Aviation Lubricants Co., Inc., San Diego, Calif.
Bay State Spray Equipment Co., Springfield, Mass.
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The Dean & Barry Co., Columbus, Ohio
Eastern Spray Equipment
c/o Mitchell-Love, Philadelphia, Pa.
Edgcomb Steel of New England, Inc., Milford, Conn.
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Ellicott Paint Co., Inc., Buffalo, N. Y.
Finishing Equipment & Compressor Co.
Kansas City, Mo.
John Henry Foster Co., Minneapolis, Minn.
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General Spray Equipment Co., Boston, Mass.
H. J. Gottemuller Co., Inc., Baltimore, Md.
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Porter Paint Co., Louisville, Ky.
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R. W. Renton and Co., Cleveland, Ohio
Hugh Russell & Sons, Ltd., Montreal, Can.
Scobell Chemical Co., Rochester, N. Y.
Sprayway Co., Los Angeles, Calif.
Supplee-Biddle-Stoltz Co., Philadelphia, Pa.
(Industrial Division)
Tanner and Co., Indianapolis, Ind.
Tri-State Spray Equipment & Compressor Co.,
Omaha, Neb.; Rock Island, Ill.
In Europe:
Jenson & Nicholson, Ltd., London, Eng.

Petroclean D-25, write The Whistlclean Corporation, 404 Fourth Avenue, New York 16, N. Y., or circle No. 14 on Reader Service Card inside back cover.

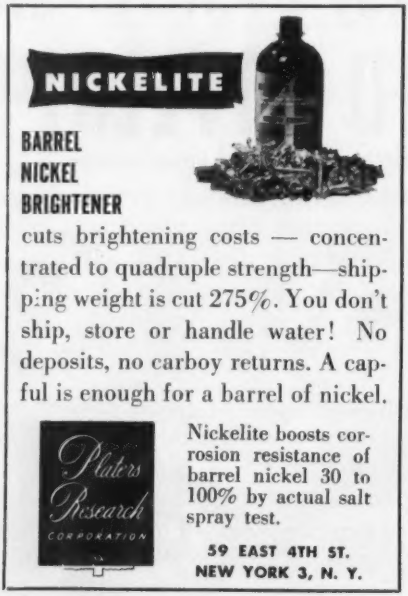
Plating Rectifier

A rectifier with exclusive features designed for cool, clean, dependable and economical performance, has been introduced by Metal Finishing Mfg. Corp. of Brooklyn, N. Y.

The Placo Rectifier embodies positive downdraft cooling to keep the entire unit cool and free from dust. Parts of the rectifier are designed for heavy duty and long life.

A dependable source for plating and anodizing power, precision engineered for good performance at peak output and efficiency, units are available from 25 to 600 amperes, 24 volts, and are protected by heavy duty cabinets.

Additional information can be obtained from Metal Finishing Mfg. Corp., 89 N. 11th St., Brooklyn 11, New York, or by circling No. 15 on Reader Service Card inside back cover.


NICKELITE
BARREL
NICKEL
BRIGHTENER
cuts brightening costs — concentrated to quadruple strength—shipping weight is cut 275%. You don't ship, store or handle water! No deposits, no carboy returns. A capful is enough for a barrel of nickel.
Nickelite boosts corrosion resistance of barrel nickel 30 to 100% by actual salt spray test.
Platers Research CORPORATION
59 EAST 4TH ST.
NEW YORK 3, N. Y.

Paint Stripping Process

The cost of stripping old paint from freight cars, passenger cars and locomotives can be sharply reduced, and the time cut down to minutes, with the help of a simple paint stripping rack developed by the Pennsylvania Salt Manufacturing Company, it has been announced by H. F. McIntyre, sales manager for Pennsalt railroad maintenance cleaners.

The rack, designed in cooperation with the Mechanical Department of an Eastern railroad, also saves paint stripping solution by returning the runoff to the solution tank for recirculation. By using a stripping rack on both sides of the track, cars can be stripped completely in a matter of minutes, it is stated.

Pennsalt #25 Paint Stripping Compound, a concentrated alkaline material, is used in the heated solution tank which is a part of the rack. This product will remove any number of coats of paint quickly, and will rinse clear without leaving white deposits, the manufacturer states.

Free schematic blueprints of the paint stripping rack can be obtained by writing to Pennsylvania Salt Manufacturing Company, Maintenance Chemicals Department, 1000 Widener Building, Philadelphia 7, Pa., or by circling No. 16 on Reader Service Card inside back cover.

Abrasive Band Wheels

Even-Cut rubber cushioned abrasive band wheels are available in over 50

HOUGHTON

ACITROL

PICKLING INHIBITOR

says *Yes* to all!

Readily soluble even without pre-mixing? *Yes!*
Effective at full range of bath temperatures? *Yes!*
Equally efficient for low or high carbon or alloy steels? *Yes!*
For all rolled or forged forms? *Yes!*
Resists breakdown at boiling point? *Yes!*
Maintains its stability in acid storage tanks? *Yes!*
Saves both steel and acid? *Yes!*
Prevents pitting and smut formations? *Yes!*
Leaves metal surfaces with bright finish? *Yes!*
Costs less per ton of steel? *Yes!*
Types available for either foam-forming or non-foaming? *Yes!*

Get latest ACITROL Bulletin. Ask the Houghton Man, or write E. F. Houghton & Co., 303 W. Lehigh Avenue, Philadelphia 33, Pa.

ACITROL . . . a product of

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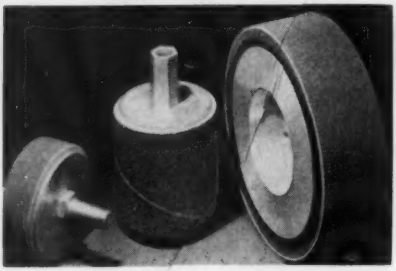
Ready to give you on-the-job service . . .



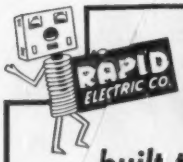
Even-Cut Abrasive Band Wheels

sizes from ¼ inch diameter by ½ inch width to 6 inch diameter by 2 inch width. Matching abrasive bands are available in open, closed and spaced grain coatings in aluminum oxide, silicon carbide and garnet in grits from 24 to 400 from the Even-Cut Abrasive Band Company.

Even-Cut band wheels are extremely versatile. With only one wheel, almost any kind of cutting, polishing or finishing can be accomplished by merely using the suitable type of band and grit. The band wheel will not change in diameter, and consequently it maintains a constant peripheral speed, resulting in uniform operating characteristics. Even-Cut band wheels are suitable for use with all types of metals.

The wheels consist of a plated alloy steel shaft with flanges holding a specially fabricated rubber wheel. Abrasive bands can be quickly and easily slipped over a wheel.

A wide variety of Even-Cut bands is available, including extra flexible, special resin bonded abrasive types. Special lapless construction permits bands to be run in either direction, and eliminates fraying of edges. For further information write E. G. Ford, Even-Cut Abrasive Band Company, 8212 Carnegie Avenue, Cleveland 3, Ohio, or circle No. 17 on Reader Service Card inside back cover.



SELENIUM RECTIFIERS

. . . built to your Specifications.

INDUSTRIAL AND LABORATORY USE.

- ELECTROPLATING
- ANODIZING
- PERIODIC REVERSERS
- CONTROLS

CATALOG AVAILABLE ON REQUEST.

RAPID ELECTRIC CO.
2877 MIDDLETOWN ROAD, N. Y. 61, N. Y.

Chemical Resistant Paint

An improved type of Chem-Rem, acid and alkali resistant black paint, announced by Speco, Inc., Cleveland, is said to have substantially greater covering capacity. This makes possible effective one coat coverage, instead of the multi-coat process previously recommended, the manufacturer states.

Water repellence and lustre are also improved through the inclusion of silicone in the paint formula. Chem-Rem is recommended for both interior and exterior use on metal, masonry or wood. It withstands attacks of acetic and hydrochloric acids, dilute sulfuric acids, or mixtures of these acids. Chem-Rem is also helpful in protecting against the severe action of bleaching solu-

NOW! GET 10% TO 15% MORE ANODE MILEAGE WITH . . .

NEW ANACONDA "PLUS-4" ANODES*

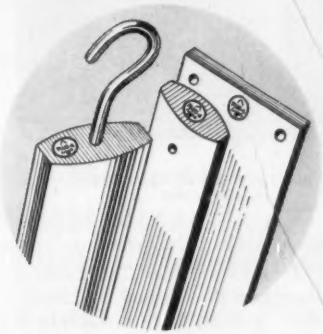
(PHOSPHORIZED COPPER)

+ 1 Freedom from anode sludge—no "bagging" or diaphragms required.

+ 2 No copper build-up in solution.

+ 3 Exceptionally smooth, heavy cathode deposits.

+ 4 10% to 15% more cathode deposits per pound of anode.

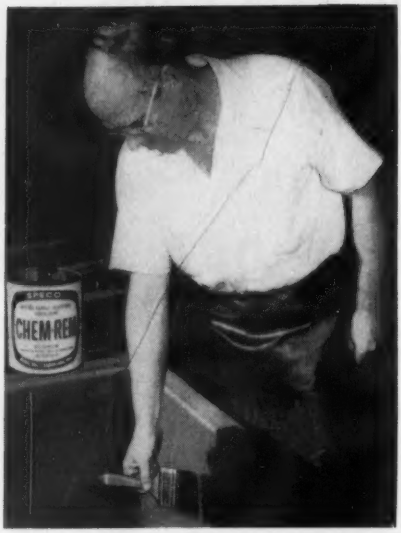


It has been discovered that carefully controlled amounts of phosphorus, together with minute amounts of other elements in electrolytic copper, make anodes of vastly superior quality for acid plating. ANACONDA "PLUS-4" Anodes are available in all the standard sizes and forms at no increase in cost over ordinary anodes. Look for the stamp "PLUS-4" on the anodes you buy.

We'll be glad to supply additional information, in detail, without obligation. Just write to: The American Brass Company, Waterbury 20, Connecticut. 54156

*For use under Patent No. 2,689,216

ANACONDA® **"PLUS-4" ANODES** made by THE AMERICAN BRASS COMPANY



Plating tank being coated with Chem-Rem chemical resistant paint.

tions, dilute caustic soda, ammonia and other alkalies.

Chem-Rem can be applied by brush, spray or dip. It dries to the touch in 3 hours and sets in 10 hours.

For additional information, write Speco, Inc., 7308 Associate Avenue, Cleveland 9, Ohio, or circle No. 18 on Reader Service Card inside back cover.

UDYLITE SERVICE DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.

LOOKING INTO THE FUTURE?

The Udylite Research Corporation was founded to plan for tomorrow. We can help you with your five-year or ten-year program. It costs you nothing to find out. Write to—

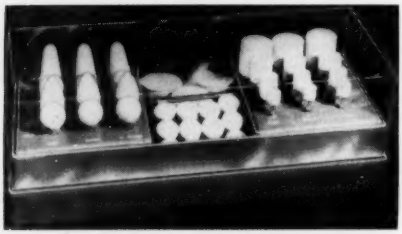
THE Udylite CORPORATION
DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

Felt Bobs

An assortment of Paramount Brand Felt Bobs packaged in a box that doubles as a handy bench-top holder for the bobs when they are not in use is now available from the Bacon Felt Company.

The bobs in the K-1 assortment are mounted on ⅛ inch mandrels and include 12 plain shapes. These consist of four sizes each in soft, medium, hard and rock hard, and 16 standard shapes. Each of these four sizes has four degrees of hardness. In addition, the assortment includes 36 wheels in assorted sizes and densities, a ⅛ inch mandrel on which the wheels may be mounted, and six 2 by 2 inch squares of rubbing felt for final hand finishing touchups.



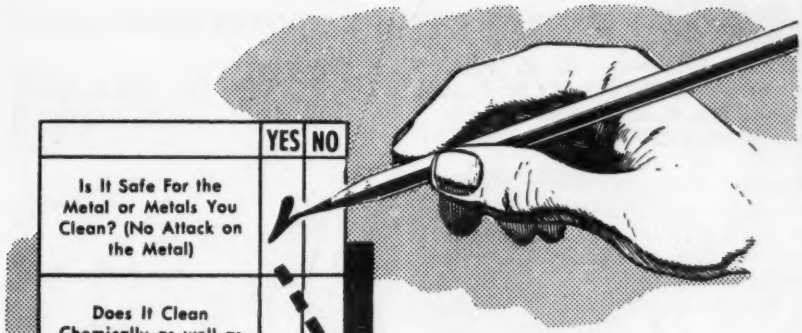
Paramount K-1 Felt Bob Assortment

The package for the Paramount bob assortment is designed to be kept on the workbench as a holder for bobs and wheels when they are not in use.

For information concerning Paramount K-1 Bob Assortment, write Stanley McNeilly, Bacon Felt Company, 427 West Water St., Taunton, Mass., or circle No. 19 on Reader Service Card inside back cover.

Flexible Plastic Pipe

A lightweight flexible plastic pipe has been developed by Quaker Rubber Cor-



	YES	NO
Is It Safe For the Metal or Metals You Clean? (No Attack on the Metal)		
Does It Clean Chemically as well as Electrolytically? (Speeding and improving the cleaning operation)		
Can Its Solutions Carry High Current Densities? (Insuring fast, effective cleaning)		
Can It Be Used for Either Anodic or Cathodic Cleaning? (Providing flexibility in the cleaning operation)		
Does It Provide Long-Lived Solutions? (Assuring material improvement in cleaning costs)		

You can check every "YES" for the Right Magnus Electro-Cleaner!

There's a cleaner in the Magnus line of Electro-Cleaners best qualified to give you fast, thorough, low-cost electro-cleaning on aluminum, die-cast, steel or soft metal parts.

Ask for details on test-runs for YOUR products in the Magnus Laboratory to determine the right cleaner for your electro-cleaning operations.

magnus

MAGNUS CHEMICAL CO., INC.
208 South Ave., Garwood, N. J.
In Canada: Magnus Chemicals, Ltd., Montreal
Service Representatives in Principal Cities

poration, Division of H. K. Porter Company, Inc., Philadelphia 24, Pennsylvania, according to G. A. Dauphinais, vice president and general manager.

Quaker plastic pipe, Series "200," is made of 100 per cent virgin polyethylene resin, and guaranteed to be nontoxic. It will not rot, rust, or corrode, is easily handled, and requires no special tools to install, the manufacturer states.

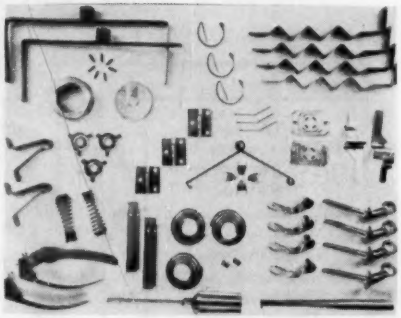
Typical applications include cold water systems, farm piping, sewerage and waste, water service lines, and for conveying industrial chemicals and gases.

For further data circle No. 20 on Reader Service Card inside back cover.

Metal Cleaning Method

Magnus Chemical Co., Inc., has introduced a method known as Aja-Lif-71 for cleaning metal parts. This method has demonstrated certain advantages during a year's usage in the field. Some of these are: absence of tarnishing on most metals during cleaning with this method; excellent removal of sulfurized and chlorinated oils; thoroughness in removal of metal chips.

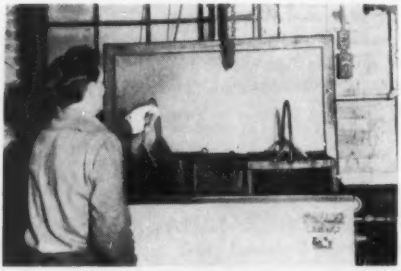
Basically, this method uses Magnus No. 71 cleaning compound and an Aja-Lif cleaning machine. The cleaning solutions exhibit long service life, and thus are very economical. If left on the surface of steel parts, Magnus No. 71 provides temporary protection against corrosion, the manufacturer states.



An assortment of parts now being cleaned by Magnus Aja-Lif No. 71 cleaning method.

Magnus cleaning machines provide the necessary mechanical agitation for the process. In the process, parts are agitated up and down 90 times per minute in the cleaning solution.

For descriptive literature and complete information on this method, write to Department PF, Equipment Division, Magnus Chemical Co., Inc., Garwood, New Jersey, or circle No. 21 on Reader Service Card inside back cover.



Baskets of metal parts being removed from Magnus cleaning machine.

Selenium Rectifier

A bench selenium rectifier with continuously variable output control ranging from zero to full rated power, has been announced by Rapid Electric Company, 2877 Middletown Road, Bronx 61, N. Y.

Designated as Model 1020 F, the full wave design unit operates on an input of 110-120 volts, single phase, 60 cycle

Be sure of rack coating

that saves you work and money

...use COATING 218X

IN plastisol Unichrome Coating 218X you get genuine quality which quickly shows up on the job. It withstands all plating, anodizing and cleaning cycles – even those with *vapor degreasing cycles*. This keeps coating costs at bedrock, simplifies racking. Coating 218X won't contaminate even the "fussiest" of plating solutions – thereby avoiding future trouble and costly downtime.

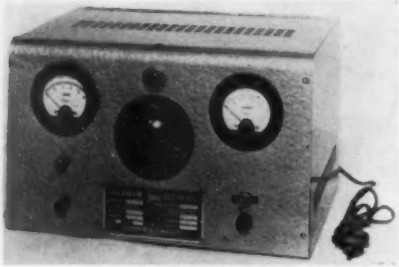
This resilient coating doesn't chip, crack, blister. It rinses freely, cuts dragout, minimizes drag-in. Little wonder that Coating 218X is used so widely by cost-conscious platers.

Remember, Coating 218X is produced by United Chromium . . . the only company that has: (1) Developed plating processes; (2) Given service on plating problems; (3) Ten years experience in formulating highly corrosion-resistant plastisols . . . and therefore knows what quality a rack coating needs for most economical plating service.

UNICHROME Trade Mark **COATINGS for METALS**

Products of UNITED CHROMIUM, INCORPORATED

100 East 42nd St., New York 17, N.Y. • Detroit 20, Mich. • Waterbury 20, Conn. • Chicago 4, Ill.
Los Angeles 13, Calif. • In Canada: United Chromium Limited, Toronto 1, Ont.



Model 1020 F Selenium Rectifier

a.c., with a rated output of 20 amperes 0-10 volts, d.c. An inductive capacitive filter provides an output with less than 5 per cent ripple, the manufacturer states.

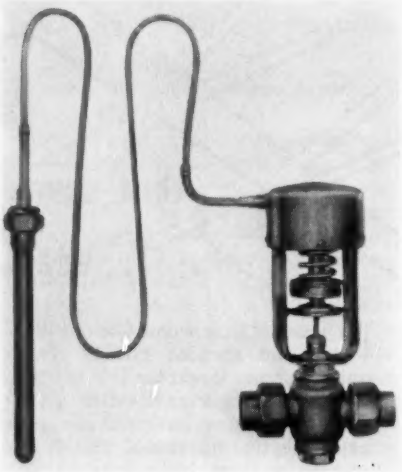
Model 1020 F is furnished complete with 2 per cent F. S. accuracy volt and ammeter, pilot light, starting switch, and fuse overload controls.

Rapid Electric Company also manufactures a complete line of rectifiers from 3 amperes to 10,000 amperes d.c. output. Units with higher rating are manufactured to meet customer specifications.

For further data circle No. 22 on Reader Service Card inside back cover.

Temperature Regulator

A statistician at Fulton Sylphon Division of Robertshaw-Fulton Controls Company has calculated that there are at least 24,640 possible standard combinations of the company's #999 Temperature Regulator to meet a wide variety of conditions. This includes combinations of available valve sizes, valve types, temperature ranges, bulb types and materials. It does not include all possible variations of tube length nor some of the special features available, such as an indicating thermometer.



Fulton Sylphon No. 999 Temperature Regulator

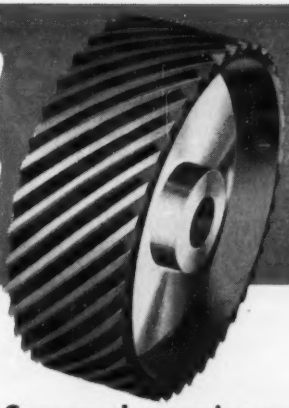
The 999 Regulator is used to control temperatures for industrial processes requiring accurate control.

The 999 Regulator is self-powered, and requires no compressed air, electricity or other outside source of energy. It is simple and sturdy in design and construction. The frame is stainless steel. A large, two-ply, seamless metal, sylphon bellows provides long life. Over-temperature protection is a standard feature.

For further data circle No. 23 on Reader Service Card inside back cover.

MASKING TAPE
DIE-CUT TO YOUR EXACT SPECIFICATIONS FROM
SCOTCH BRAND
INDIVIDUAL PIECES • ANY SIZE OR SHAPE
For quick, accurate masking operations.
PHONE OR WRITE PANOCO
166 HENRY STREET, STAMFORD, CONN.

CUTS COSTS like Magic!



Chicago Rubber Company's amazing new R54 contact wheel cuts better—faster—longer and will substantially reduce your grinding and polishing costs 3 ways.

This precision machined and accurately balanced wheel is easily and quickly knocked down and reassembled for tire replacement or change.

- Replace only the rubber tire when necessary instead of the entire wheel.
- Choose from a complete assortment of tire treads for different grinding operations, still using the same wheel.
- And as usual Chicago Rubber Company's R54 contact wheel allows you to get the most wear from your abrasive belt—more than you ever got before.

There is a replaceable rubber tire with proper tread for every grinding requirement and in a wide variety of durometer ratings. Write for descriptive literature.

"IT'S THE WHEEL THAT DOES THE WORK"

CHICAGO RUBBER COMPANY, INC.

Main Office & Factory
2620 N. Clybourn Ave. Chicago
Makers of the COSMOWHEEL

Paint Stripper

A paint stripper, being marketed under the name of "Instant Stripper" has been developed by the V. J. Dolan Co., 1830 N. Laramie Ave., Chicago 39, Illinois.

The manufacturer points out that Instant Stripper may be applied by dip, flow coat, brush or spray. It has been formulated to remove rapidly most baked or air dried enamels, lacquers, synthetics, varnishes, wrinkle, hammer-type or specialty finishes from wood or metal products. It is non-flammable and only mildly toxic.

For further data circle No. 24 on Reader Service Card inside back cover.

Zeolite Water Softener

The Industrial Filter & Pump Mfg. Co., 5904 Ogden Avenue, Chicago 50, Ill., has announced a line of zeolite water softeners. Industrial zeolite water softeners are individually designed to meet particular size and capacity requirements for soft water in food and processing plants, power plants, railroad locomotives, porcelain enamel plants, electroplating and metal finishing plants, and for potable soft water supply.

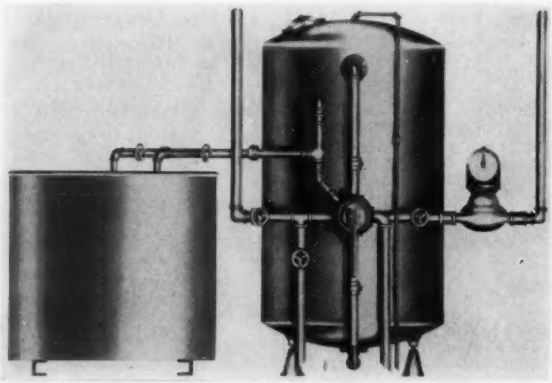
In these units Industrial offers a choice of controls for either manual or automatic operation. Standard equipment is a multiport single control valve. However, if desired a nest of individual valves can be furnished. In automatic operation, the steps of backwashing, brining, rinsing and return to service are carried out automatically without operator's attention. In semi-automatic operation, initiation of the regeneration cycle is controlled by push button.

For further data circle No. 25 on Reader Service Card inside back cover.

Accessory for Overhead Cable Conveyor

The E. W. Buschman Company has announced the availability of an attachment for use in Bush-Lock Cable Conveyor Systems handling parts through dipping operations. Positioned in the conveyor system immediately following the dip tank, the unit, known as the DipAid, imparts a variety of motions to the part or product to aid in securing more even distribution of the finish.

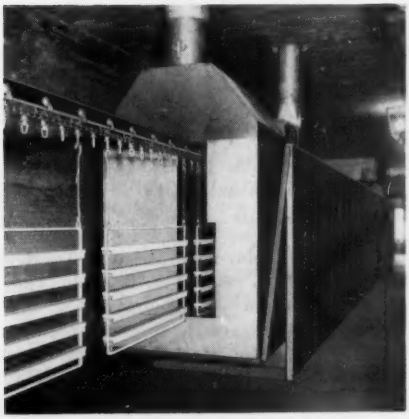
For use where parts or products are dipped into paint, plastic, liquid latex, lead, zinc or other organic and inorganic finishes, the DipAid consists of two spiral 180 degree twists in the trolley rail plus accessory buffer strips and side guide rails. In application, the product emerging from the dip tank is swung counterclockwise through a 180 degree arc, and then returned to its normal po-



Industrial Zeolite Water Softener

Here's a Real

in this MODERN "Streamliner" LIGHTING FIXTURE



ENAMEL DRIED IN A CONTINUOUS LANLY FINISHING OVEN

Eye appeal and product "Sale-ability" of this attractive Virden fixture are greatly enhanced by the smooth, lustrous coating of white synthetic enamel on certain component parts.

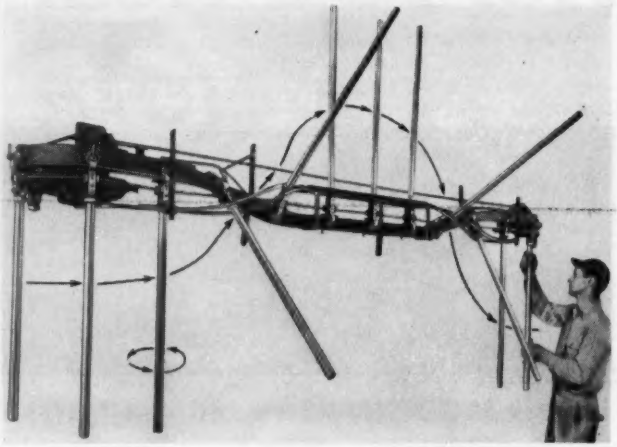
Drying is rapidly and economically accomplished in a LANLY gas-fired, continuous oven at 300 degrees F.

Precise, volume production is a routine matter at Virden.

YOU, TOO, CAN DO A BETTER JOB WITH LANLY OVENS

Write today for details and let us show you how!

LANLY FINISHING OVENS
THE LANLY COMPANY • 770 PROSPECT AVE
CLEVELAND, OHIO



DipAid Accessory for overhead cable conveyor in operation.

sition by the spiral twists in the rail. At the same time, a horizontally-mounted wheel engages a side rail to make the part or product rotate along its own axis. These motions tend to minimize running, streaking, sagging or beading of finish and aid in securing a more even distribution of the coating.

Designed for use on any ¼ or ⅜-inch Bush-Lock Cable Conveyor, the DipAid can be furnished in lengths and designs to impart a wide variety of motions to meet individual requirements.

For further data circle No. 26 on Reader Service Card inside back cover.

UDYLITE SERVICE
DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.
OUR FIELD SERVICE STAFF IS LARGE
In fact, largest in the electroplating field. That means you get frequent service check-ups. We maintain Udylite equipment at top performance.
It's all free, of course. Just another plus when you buy from Udylite.

WORLD'S LARGEST PLATING SUPPLIER

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

Cross-Serrated Contact Wheel

A rubber contact designed for use with abrasive belts in polishing operations has been added to its R-54 line by Chicago Rubber Company, Inc., 2620 North Clybourn Avenue, Chicago, Illinois.

Designated as the "Cross-Serrated Wheel," the rubber contact wheel is designed with a row of 3/16-inch wide contact lands set at an angle of 45 degrees. The distance between lands is ¾ inch. A series of ⅛-inch wide slots are cut across the face of the wheel at an angle of 20 degrees with the vertical. Thus, the support surface is broken up into a series of short surfaces rather than the normal land running the full width of the wheel.

Advantages claimed by the manufac-

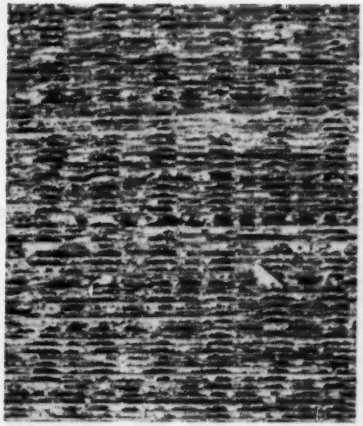
For a real good polishing job use

Keystone TURKISH Emery

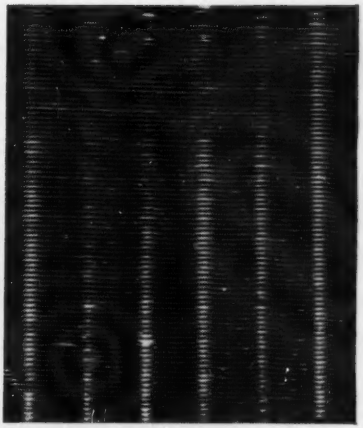
FRESH SUPPLY AVAILABLE

KEYSTONE EMERY MILLS *Write for Sample* **4316 Paul St., Phila., Pa.**

1150-hour salt spray test shows increased corrosion resistance with Bonderite on aluminum



UNTREATED. *Unretouched photo of section of aluminum refrigeration air conditioner condenser after 1150 hours in salt spray. Note corrosion.*



BONDERITE-TREATED. *Unretouched photo of identical aluminum refrigeration air conditioner condenser after 1150 hours in salt spray. Note absence of corrosion.*

If you want more effective bare corrosion resistance or increased durability for paint, treat aluminum and its alloys with Bonderite.

Special formula Bonderites have been developed and tested and proven thoroughly for this purpose. They form a thin, irridescent, remarkably effective integral coating with the aluminum in simple and economical operation. Solutions are sludgeless, easily controlled, and produce results of uniform high quality.

The Bonderite coating is flexible, withstanding moderate draws without trouble. The coating conducts electricity, necessitating no change in arc and spot welding procedures. Bimetallic and galvanic corrosion resistance is high.

Bonderite for aluminum is shipped in concencentrated liquid form, easy and safe to handle and use.

Get complete information on this more effective protection for aluminum and its alloys. Write for bulletin on Bonderite 710 and 720.

**Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.*

Since 1915—Leader in the Field

PARKER RUST PROOF COMPANY
2172 E. Milwaukee, Detroit 11, Michigan

BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE	TROPICAL
corrosion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces	heavy duty maintenance paints since 1883

Cross-Serrated Contact Wheel

turer for the Cross - Serrated Wheel include increased cut and aggressiveness. The support surface is said to be softer and more flexible, enabling the abrasive belt to follow the contours of irregular parts more readily.

The Cross-Serrated Wheel is available in a wide variety of sizes, widths and rubber hardnesses.

For further data circle No. 27 on Reader Service Card inside back cover.

Paint Stripper

The Corrosion Control Company, Inc., has announced the development of a paint stripper called "Walgarite 10." It is stated to be a non-flammable, odorless, solvent type stripper, formulated to effectively remove industrial lacquers, vinyls, phenolics, rubber base, epoxy, and baked on finishes as well as maintenance type protective paints and coatings.

Walgarite 10 is made in a heavy viscosity so that it will adhere to vertical surfaces without sag. It dissolves and wrinkles the finish which can then be flushed off with water leaving the base surface ready for repainting. It can be used on all types of metal, both ferrous and non-ferrous, without any deleterious effect. It is safe to use and does not burn or affect the skin. Spray and dip type strippers in both flush-off and scrape-off types are also available.

For further data circle No. 28 on Reader Service Card inside back cover.

UDYLITE SERVICE DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.

PLANNING ON NEW EQUIPMENT?

Getting the right answers to space requirements, production uniformity, current economies, and reduction of rejects will pay off in bigger profits. Our engineers have years of "know-how." They'll be glad to share their experience — free. Just write to—

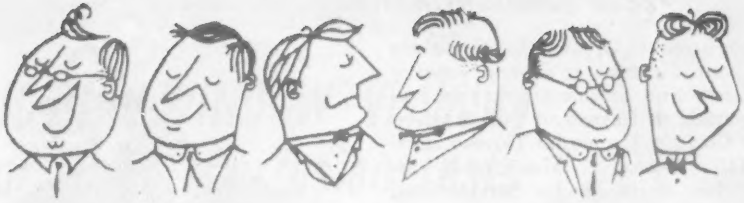
THE Udylite CORPORATION

WORLD'S LARGEST PLATING SUPPLIER

Demineralizer Cartridge

Barnstead Still and Sterilizer Co. has announced a cartridge type demineralizer that will deliver pure demineralized water under pressure. Called the Barnstead Pressure Bantam Demineralizer, Model BD-2, it is a compact, wall mounted demineralizer that connects directly into any water line. It is a non-regenerative unit that does not require acid and caustic regenerant solutions, but employs a replaceable resin cartridge. The Barnstead Pressure Bantam delivers demineralized water in continuous flow,

Barnstead Demineralizer Cartridge



SIX heads are better than one

WHEN PRODUCTION LAGS IN YOUR FINISHING DEPARTMENT . . .

. . . especially if they are on a No. 13-10 PACKER-MATIC automatic polishing and buffing machine (shown below). Cost-conscious *production men* know from experience that these famous Packer-Matics can buff, polish or deburr faster, more economically and with greater uniformity than hand operation.

packermatic Model 13-10 has a standard indexing speed of from 190 to 1000 pieces per hour.

packermatic flexibility turns "specials" into routine jobs, cuts finishing costs wherever used.

packermatic interchangeable heads, simplicity of set-up and ease of operation speeds up production.

packermatic versatility can handle multiple contour units with maximum efficiency and speed.

packermatic vital parts are lubricated under pressure and protected in dust proof oil reservoir.

packermatic finishing techniques — with automatic equipment — increases customer satisfaction and profits.

OUR ENGINEERING STAFF INVITES YOUR INQUIRY.

PACKER-MATIC

AUTOMATIC MACHINES FOR BUFFING • POLISHING • DEBURRING

THE PACKER MACHINE COMPANY • MERIDEN, CONN.

under pressure, from 5 to 25 gallons per hour. No heat or cooling water is required. Full particulars may be had by writing to Barnstead Still & Sterilizer Co., 130 Lanesville Terrace, Forest Hills, Boston 31, Mass., or by circling No. 29 on Reader Service Card inside back cover.

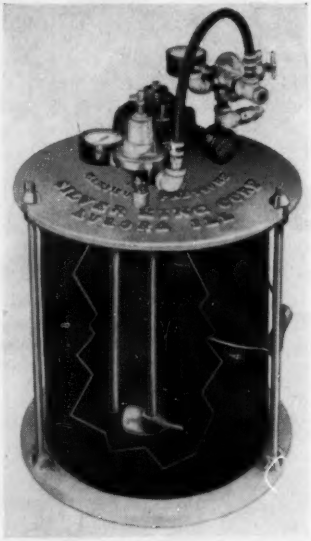
Paint Container Adapter

The Silver-King Corporation, Aurora, Illinois, has marketed an improved model of its paint container adapter which turns any type of 5-gallon container into a high-speed sprayer.

Retaining all the features of the earlier adapter, the later model has the improvement of streamlined design and longer wearing, light weight materials for greater ease of handling plus an agitator which stirs and keeps pigment and fluid in constant suspension.

The Silver-King Adapter provides a safe, quick method of using paint, varnish or lacquer direct from the original container with no time nor material loss.

A complete unit, the Silver-King Adapter can be attached in 2 minutes to any 5-gallon can and is ready for instant use with any standard spraying equipment. The unit consists of 2 cast aluminum plates, one for the top and one for the bottom of a 5 gallon container, joined together by hinged vertical rods. The top plate is fastened on by hand with 3 wing nuts.



Paint Container Adapter

A gauge, regulator and safety valve are part of the top plate assembly. Any type of air fitting can be used with equal efficiency. Ten pounds of air pressure will adequately operate the unit.

UDYLITE SERVICE
DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.

TAKE SOLUTIONS FOR EXAMPLE:
We maintain a customer laboratory for the testing of your solutions. Our free services will save you money. Why not find out for yourself. Write to—

WORLD'S LARGEST PLATING SUPPLIER

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

McKeon's "Liquid Sulphur"

Economical, satisfactory for
STRIPPING COPPER
and
OXIDIZING COPPER AND SILVER

Literature on request

Sulphur Products Co., Inc.
228 McKEON WAY GREENSBURG 6, PA.

New Singleton "H-T Sincolite" Test Cabinet

Built to meet all U. S. Government Specifications for Accelerated Corrosion Testing

Clear Visibility — "Picture-Windows," front and rear, for wide view. Observe progress during tests without opening lid or handling the specimens. Fog can be controlled visually.

Uniform Accuracy—Users report test results within "10% of absolute duplication." New water-jacket heaters for uniform temperatures throughout. "H-T Sincolite" is non-porous, inert.

Lasts Indefinitely — Exclusive Singleton Fusion-Welded "H-T Sincolite"—permanent, no leak seams. No deterioration, no maintenance, won't wear out. **The finest at the lowest price!**

Send for Bulletin and prices.

The G. S. Equipment Co.

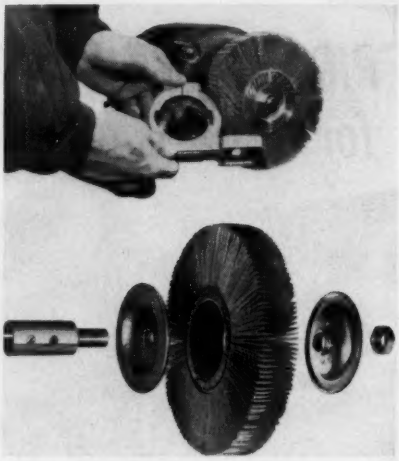
5321 St. Clair • Cleveland 3, Ohio
Endicott 1-0167, 1-3541

Flexible Grinding Wheel

A new principle for light grinding and metal finishing is being introduced by Merit Products, Inc., 4023 Irving Place, Culver City, California. The new tool, known as Grind-O-Flex, is a flexible grinding wheel which consists of hundreds of individual abrasive cloth leaves sealed to a hard core. As the wheel rotates it presents a continuous abrasive surface to metal parts. It is designed to smooth surfaces and remove flaws from contours without the danger of digging into the stock.

Grind-O-Flex is 6½ inches in diameter, one inch wide and is available in a variety of grits from coarse to very fine. It may be used for all types of light grinding and deburring on irregular surfaces.

Grind-O-Flex is easy to set up and operate. A mounting arbor is provided for attaching the wheel to any standard plain or threaded shaft or for chucking in ¼ or ½-inch chucks. Flanges, which are held securely in place against the Grind-O-Flex by a single nut, are also provided. Arbor and flanges may be used repeatedly, only the wheel need be replaced when worn.



Grind-O-Flex assembled for use (above), and the component parts (below).

Grind-O-Flex attaches to any rotating spindle (motor shaft, lathe, drill press, portable drill, flexible shaft, and so on). Full information may be obtained by writing Merit Products,

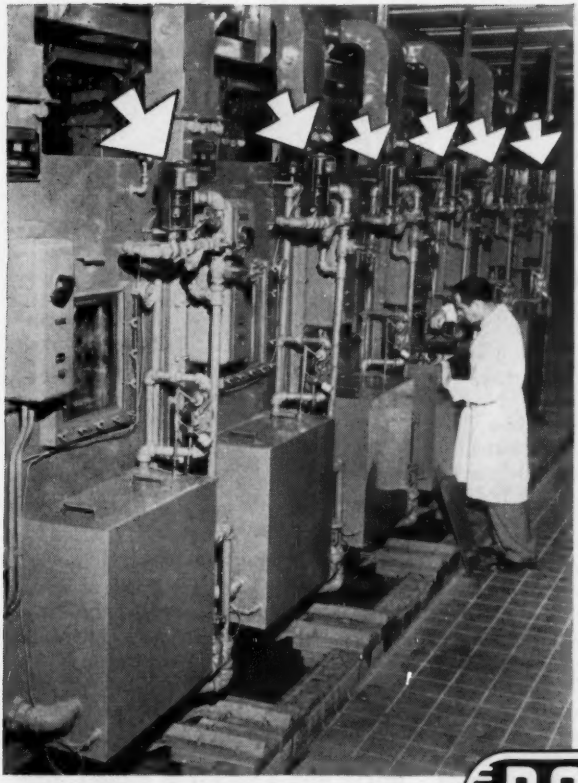
MORSE
VERTICAL DRUM TRUCK
ROCK-A-DRUM

Picks up 55 gal. drums, rolls them over for side draining. Becomes a rugged stand on 3" wheels.
MORSE MFG. CO., INC. 762 W. Manlius St. East Syracuse, N.Y.

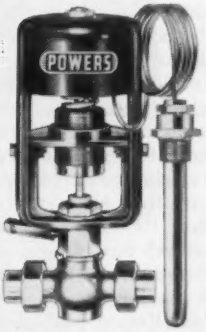
Portable Sandblast Gun
—Complete— simply connect to air line

Rugged • Efficient • Guaranteed $27.50
A Real Performer Handy in any shop
LINDBERG PRODUCTS CO. Box 885 P Los Gatos, Calif.

UDYLITE SERVICE
DOESN'T COST—IT PAYS
These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.
DO YOU HAVE A DIFFICULT PART TO PLATE?
Take your problems to Udylite. We have a pilot plant where we will check your plating problem and make recommendations. It will save you from future costly mistakes. This service is free! Write to—
WORLD'S LARGEST PLATING SUPPLIER
THE Udylite CORPORATION DETROIT 11, MICHIGAN



AT
WYANDOTTE CHEMICAL CO's.
Modern research laboratories METALWASH Spray Washer is controlled by POWERS No. 11 Temperature Regulators



SIMPLICITY of POWERS

No. 11 Self-Operating Regulators, plus their years of reliable control plus availability of SERVICE, in 60 Cities, if required,—are reasons why equipment manufacturers like to use POWERS No. 11 regulators shown above. Bulletin 329 describes their many points of superiority. Write for a copy. (c5)

THE POWERS REGULATOR CO.
Skokie, Ill. • Offices in 60 Cities • See your phone book

Over 60 Years of Automatic Temperature and Humidity Control

Inc., manufacturer of the line of Sand-O-Flex contour sanders, or circling No. 30 on Reader Service Card inside back cover.

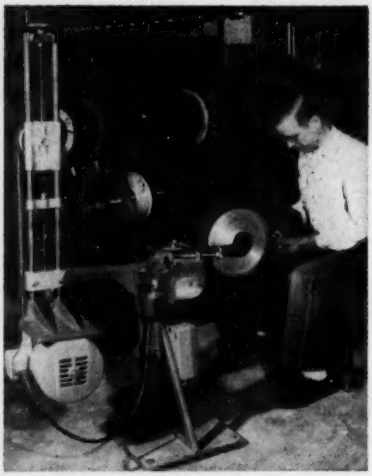
Single Base Bader Belt-Polishing Unit

A belt polishing machine with contact wheel, idler wheel, and drive motor all mounted on a single pivotal base has been announced by Stephen Bader & Co., Rockville Centre, N. Y.

Called the Bader Space Saver, the polisher not only saves space but also simplifies installation, eliminates tracking problems, and in addition, cuts to a minimum the need for adjustments during operation.

To change working height from a sitting to a standing position, the operator loosens one bolt, swings the balanced unit to the desired position, and retightens the bolt. Tracking and belt tension remain unaffected.

Installation problems such as aligning motor and grinding bases for proper belt tracting are eliminated. The machine is driven by a G-E Tri-Clad* "55" totally-enclosed fan-cooled motor mounted directly to the balanced base.



Bader Space Saver.

The drive pulley is used as the backstand, with the frontstand an idler pulley performing as the contact wheel. Belt rotation may be reversed at full speed without danger of the belt slipping off the wheels.

The Bader unit uses a standard belt length with a variety of contact wheel sizes. Wheel diameters may be varied from 2 to 18 inches without changing surface speed.

For further data circle No. 31 on Reader Service Card inside back cover.

* Registered Trade Mark of the General Electric Co.

UDYLITE SERVICE
DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.

IS YOUR ELECTRICAL SYSTEM EFFICIENT?

We have recommended new equipment to many manufacturers that has paid for itself in a matter of months. Why not let us check your power set-up? Write to—

WORLD'S LARGEST PLATING SUPPLIER

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

Solution Filter

A filter that incorporates a new filtration principle and provides additional filtering area and volume, has been announced by Bart-Messing Corp., of Belleville, N. J. The Sel-Rex filter can be used with either a new type stainless steel element or standard porous stone elements.

Double filtration area and volume is

ROCKFORD VARNISH

RV

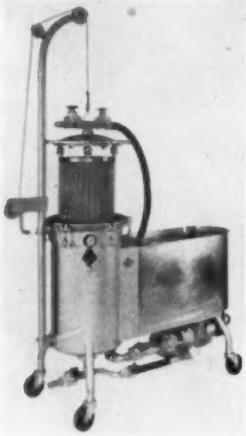
ROCKFORD, ILLINOIS

MANUFACTURERS OF PROTECTIVE AND DECORATIVE FINISHES

Wistful? Ah, yes . . . that wishful thinking will get you, sometimes. But, if you are a customer of Rockford Varnish Company, your wish is our command. We are Ready . . . Able . . . and Willing . . . to turn RAW materials into a beautiful finish that will put the gleam in your customers' eyes, and satisfy their wishes for SOMETHING BETTER. If our big range of standard finishes don't fulfill *your* wishes, we have several distinctive "specialties" that might. Try us.

Affiliate: GORDON BARTELS CO., *Roller Coating Specialists*

accomplished with a new filter element constructed of corrugated stainless steel and wire mesh, which supports a filter



Sel-Rex Filter

bag. Furnished in a variety of cloth materials, the bag type element is suitable for use with any type solution or liquid. If other types of filter media are desired, the Sel-Rex filter can be converted for filtration with porous stone.

Many features for practical and economical plant operation and maintenance have been incorporated into the new Sel-Rex filter. The entire filter element is attached to the cover of the tank, and is easily removed for cleaning or replacement. As optional equipment, larger models are fitted with a hand operated davit for lifting the cover and element. All models have an extra capacity stainless steel precoat tank, to make precoating a one-step operation. For routine cleaning, the unit can be backwashed. A complete range of sizes and capacities is now available, for both acid and alkaline solutions in portable and stationary models. Standard portable models have up to 20 square feet of filtration area and a capacity of 2000 g.p.h. Standard stationary models have up to 175 square feet of filtration area and a capacity of 18,000 g.p.h.

For further data circle No. 32 on Reader Service Card inside back cover.

NEW BOOKS

DUST AND FUME ELIMINATORS. Two new Centri-Merge Vertical Rotor wet type dust and fume eliminators are described in **BULLETIN VU-8-53,** issued by **Schmieg Industries, Inc.,** P.O. Box 4701, Detroit 34, Michigan, the manufacturer.

One Vertical Rotor unit is for wet collection and elimination only, while the other is a combination primary dry and secondary wet collection and elimination unit.

The combination unit has an integral dry type pre-cleaner for dry collection of heavier and most fine particles. It is particularly useful where material salvage is an operational requirement.

Both the new Centri-Merge units combine the cyclonic principle of dust separation and positive high pressure water action, to wash impurities from the air in a rotating torrent of water. For certain applications, according to Schmieg, other liquids may be substituted for water. Capacities range from 500 to 50,000 c.f.m.

Schmieg also engineers and manufactures production finishing equipment, spray booths, industrial ovens, mechanical washers, and sheet metal equipment and accessories.

CORROSION-PROOF LININGS CEMENTS BRICK

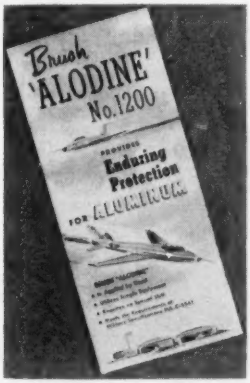
• TANKS, FLOORS, FUME DUCTS AND PROCESS EQUIPMENT
• COMPLETE LINE OF PROTECTIVE COATINGS . .

Over a Quarter Century of Experience

CEILCOTE CORROSION-PROOF MATERIALS • CONSTRUCTION • SUPERVISION

The CEILCOTE Co. 4848 Ridge Rd. Cleveland 9, Ohio

PROTECTIVE COATING CHEMICAL. A folder describing Brush "Alodine" No. 1200, a chemical product used



to improve the corrosion resistance of unpainted aluminum, and to form a durable bond for paint, is available from **American Chemical Paint Co.**, Ambler, Pa.

The folder describes the use of Brush "Alodine" No. 1200, which meets the requirements of Military Specification MIL-C-5541, and lists its advantages.

STAINLESS STEEL LIBRARY. A 4-page folder describing its stainless steel "library" is available from Product Information Service, **Armco Steel Corp.**, Middletown, Ohio. Thirteen booklets on stainless steels for various applications are illustrated and described in the folder.

1948-1949 Bibliographic Survey of Corrosion. 8½ x 11 inches, hard cloth binding, 346 pp., 1954. Available from National Association of Corrosion Engineers, 1061 M & M Building, Houston 2, Texas. Per copy: non-member NACE, $12.50; members NACE, $10.00.

Summaries of 3512 corrosion and corrosion prevention articles, books and brochures published in 1948-1949 are compiled in this volume. Abstracts by 30 technical societies were canvassed regularly for material taken from more than 500 sources the world over.

The NACE Abstract Filing Index, formulated by experts in the field of corrosion over a period of several years, is used to classify the material topically. Literature is put into eight main groups in the NACE system: general, testing, characteristic corrosion phenomena, corrosive environment, preventive measures, materials of construction, equipment and industries. Each main group is subdivided. Topical cross-references are appended to each section.

The subject index, in addition to terms in the NACE Abstract Filing System, lists many metals and alloys by trade name and indexes them as to specific properties and to behavior in specific media. There are more than 2700 names in the author index; companies and associations are not listed. Referencing is to the classification and serial numbers of each abstract. These numbers and the reference data are emphasized by type style and arrangement. The appendix aids the user in locating and obtaining copies of unfamiliar foreign or domestic journals.

UDYLITE SERVICE DOESN'T COST—IT PAYS

Udylite service begins with your first inquiry and continues as long as you need it. You are *not forgotten* after the sale. Udylite metal finishing "know-how" is always available at your request . . . and it makes no difference if your operation is large or small.

When you buy from Udylite you get "More Than A Pound." Udylite gives you these 6 important helps beyond outstanding equipment and tested supplies at no extra cost.

- A pilot plant where we check new plating problems and make recommendations.
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- Electrical Service for the latest in current usage recommendations.
- Field Service men who are regularly checking Udylite equipment now operating throughout the United States.
- Engineering Service to advise you regarding the best equipment to handle your new jobs.
- The new Udylite Research Corporation continually working to develop a new and better way of plating.

Call us in on any plating problem. Get these Udylite "More Than A Pound" services without cost or obligation.

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

NEWS of the Industry

COMPANIES

Anaconda's advent into the aluminum field has obliged its important fabricating subsidiaries to expand rapidly to meet growing markets. This has been particularly true of **ANACONDA WIRE & CABLE COMPANY** — which has expanded in all of its mills to equip itself for manufacture of aluminum products. Its most important facility (and its most interesting) is the new aluminum rod rolling and fabricating plant in Great Falls, Montana.

A million-dollar aluminum rod rolling mill will be housed in the plant. It is designed for automatic rolling of aluminum rods. Schedules call for it to be in operation early next year.

In addition to the rod rolling mill, wire drawing and stranding equipment of the latest design and valued at another million dollars will be used for production of high quality bare aluminum and strand.

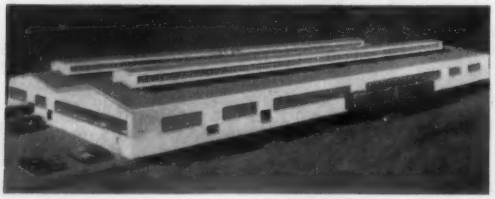
The company has been producing aluminum wires and cables at Great Falls for more than two years. The present expansion, it is hoped, will keep pace with requirements for these products widely used by public and private industry, particularly electrical utilities.

Together with a separate building alongside for copper fabricating, Anaconda Wire & Cable Co. now has 195,000 sq. ft. of manufacturing area, at this one location, committed to fabrication of its products.

UNITED LACQUER MFG. CORP., Linden, N. J., has announced the opening of a sales office at 3408 Washington Road, St. Louis 3, Mo., under the direction of **C. W. BORCHERDING.**

Through the St. Louis office, United Lacquer will be able to offer better service to users of United's line of industrial coatings in the mid-western states. These products include air dry and bake enamels, hot and cold furniture lacquers, and wrinkle finishes.

LEA-MICHIGAN INC., 14066 Stansbury Ave., Detroit, Michigan, is now occupying a new factory where it is manufacturing a number of Lea products used in connection with plating, polishing, and buffing, including polishing wheel cement, spray polishing compound for ferrous and nonferrous metals and electro-



Architect's perspective of new Anaconda Wire and Cable Co. plant, to be completed early next year.

New Lea-Michigan Plant.

chemicals for the plating industry. Present floor area of the plant is 7200 square feet. Part of the present building is being made into a fully equipped laboratory where the company will analyze customers' solutions and plating baths.

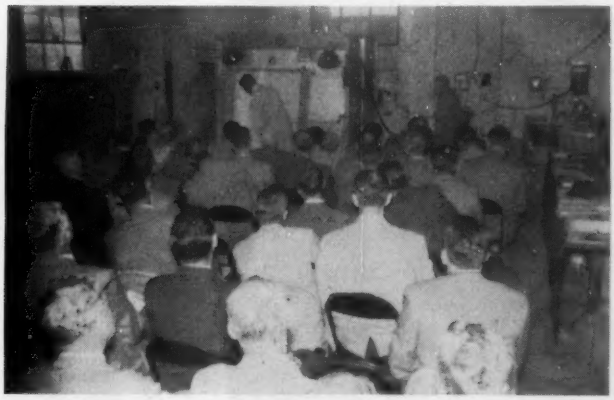
More than 100 Connecticut industrialists and representatives of paint manufacturers attended a Bede Airless Spray Painting Clinic on September 23 and 24. It was sponsored by **THE LEA MANUFACTURING COMPANY,** Waterbury, Connecticut, distributor for **BEDE INDUSTRIAL PRODUCTS CORPORATION,** developer and manufacturer of the "Airless Painting" process and equipment.

James Frier, Jr., and Frank Ziroe, representing Bede, gave informative talks on the principles and advantages of "Airless Spray Painting" in industrial finishing. Their talks were followed by an actual spraying demonstration with the Bede Airless Unit. A number of products were painted to show the advantages of this new development.

The Lea Manufacturing Company also exhibited the regular line of Bede paint heaters. The Lea Manufacturing Company is fully staffed to render engineering, plant layout and technical service on spray finishing problems, as well as other surface finishing problems involving the use of abrasive compositions or electrochemical processes.

Latest developments in spray booth maintenance, paint stripping, steam cleaning and phosphatizing will be displayed by **THE DuBOIS COMPANY,** Cincinnati, Los Angeles and New York, manufacturer of cleaning compounds for industry and institutions, at the sixth National Plant Maintenance and Engineering Show, booth 566, Chicago, January 24-27.

Some of the unique features of the Du Bois display will include on-the-spot demonstration of several DuBois booth maintenance programs, paint stripping and phosphatizing operations. Products include Peel Filmite, an opaque white, spray on, peel off plastic booth coating, Strypp-Away, a liquid paint stripper for tough, modern finishes like epons, and Ion-Kote, phosphatizer for use on ferrous metals, aluminum, and zinc prior to painting.



View of airless spray painting demonstration

A preview of tomorrow's polishing departments in automobile and appliance manufacturing—and the latest in production grinding and finishing machinery for the metalworking industry—was witnessed by more than 2,500 mid-western production executives at the new **BEHR-MANNING** headquarters and warehouse in Chicago, November 16 to 19, where some 72 machine tools using modern coated abrasive belts were shown by 38 manufacturers at a national **METAL FINISHING SHOW AND CONFERENCE.**

Of significance equal to the new equipment gathered and unveiled at the Show, was the assembly of 50 technical specialists from machinery and coated abrasive manufacturing firms. These specialists conferred with hundreds of the Show visitors who had been urged to "bring parts, polishers and problems" to this "proving ground for '55 production."

Workpieces ranging from auto bumper guards and garnish molding, through die castings, small parts and sheets of

Fig. 1—George Carlson, Acme Manufacturing Co., Detroit, is shown (right rear) pressing the starter button to place the Acme 7-station Automatic Indexing Rotary Table Polishing and Buffing Machine in operation. At left rear can be seen a portion of the extensive display of polished and buffed parts assembled by Acme for exhibit at the Behr-Manning Metalfinishing Show.

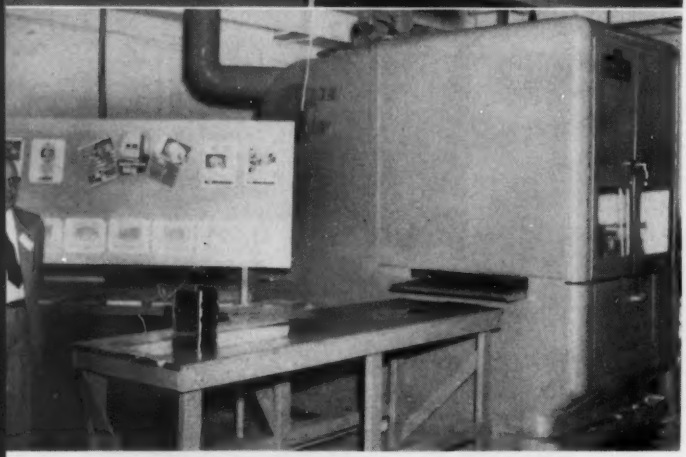


Fig. 2 — The Murray-Way Corporation displayed a 30-inch Micro Polishing Unit designed for polishing bar and strip. On hand to greet visitors was Ray Redmond (left) of Murray-Way Corp.

strange new metallurgical structure, to housings and working parts for appliances still on the drawing board, were actually polished on various models of the new apparatus in operating display. versatility with the coated abrasive belt included the biggest microfinisher yet built (30 inches wide) for tandem prepolishing or steel strip before forming rather than after, a twin-belt surfacer which will do both sides of flat workpieces at once in continuous line production, and a grinder which will hold tolerances to half of one thousandth of an inch in sizing webs of rubber, mica, laminated plastics, masonite and other nonmetallics.

Ingenuity in small tools for precision grinding and polishing has begotten several idler-and-extension attachments for adapting existing grinding spindles to contact-wheel and belt usage—for con-

Fig. 3—A partial view of the section of the Behr-Manning Show devoted to displays of small tools. Shown in left foreground conferring with two visitors is John O. Amstutz, vice president and chief engineer, Behr-Manning Corp., Troy, N. Y., who acted as official host for the show.

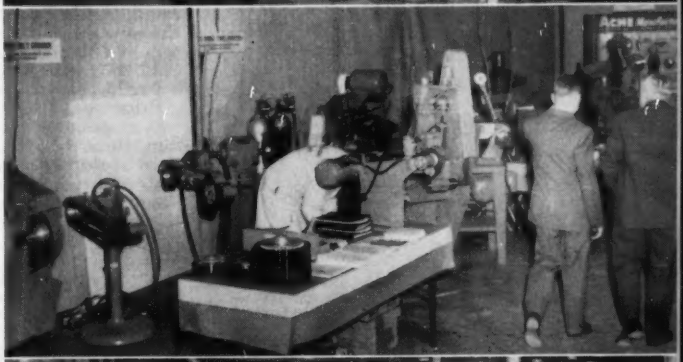


Fig. 4 — Grinding & Polishing Machinery Corp., Indianapolis, Indiana, exhibited its No. 672 Abrasive Belt Grinder, No. HS-180 Pneumatically Tensioned Grinder & Polisher, and No. EPS Spindle Stand (powered). On hand to greet visitors and explain the operation of the various units was Eric R. Lindenborg.

Fig. 5 — An overall view of one section of the polishing machinery exhibit devoted to the larger machines. Several different machines assembled by Hammond Machinery Builders, Inc., Kalamazoo, Mich., can be noted in the foreground. The machine at the right is a Hammond Rotary Automatic set up for five spindles employing coated abrasive belts.

(Photos by PRODUCTS FINISHING)

touring jobs, longer abrasive life, and the ability to use the new grits, grades, widths and backings now available in belts. One new small unit runs twin belts off a single motor for deburring and blending. Another uses the yoke principle of contact wheel support to permit exceptionally small contact wheels (down to one inch) and reach through small openings and corings.

Surely the widest variety of contact wheels ever shown — of more different designs, materials and special groovings —was a feature of high interest.

Several of the new pieces of equipment featured the platen method of achieving belt-work contact, in both horizontal and vertical orientations. Platen pressure reduces "dubbing" at the edges of sharp-edged work.

Much equipment has clearly been designed for automated production. Rotary tables with many stations for presenting work in sequence to a series of belt heads were shown by three manufacturers. A complexly articulated belt head which can follow compound curves along the length of Detroit's most intricately curved bumper without change in belt-to-work pressure stumped the mechanical ingenuity of many viewers. A duplex centerless grinding unit, the first with two belt stations in one unit which can be operated either dry or wet (lubricated), typified the invasion of abrasive-belt using apparatus into an area heretofore restricted to cutting tools or hard abrasive wheels.

Roll polishers, air tools, lubricants, dust collectors, carbide tool sharpening equipment, new abrasive wheels with the coated materials arranged radially rather than circumferentially, pneumatically operated backstands, automatic feeding tables for addressing a whole series of parts sequentially to vertical belt surfacers, and conveyor feeding and magnetic-chuck feeding units, were also displayed.

Victor G. Matosh

FREDERIC B. STEVENS, INC., is now operating a new pilot plant for experimental zinc, cadmium, copper, nickel automatic barrel, and conventional plating. The new pilot plant is also designed to provide for analysis in the problem of metal finishing waste disposal.

Helping in the establishment of the new pilot plant was **VICTOR G. MATOSH**, who recently joined Stevens as a plating service engineer.

Prior to joining Stevens, Mr. Matosh was associated with Burroughs Corporation, Houdaille-Hershey Corporation, and Ford Motor Company.

Mr. Matosh graduated with a B.S. in Chemical Engineering from Lawrence Institute of Technology.

Purchase of the complete production facilities of the Detroit Die Casting and Plating Co., 597 Beaufait Ave., Detroit, Mich., and installation of expanded facilities for gold plating die castings, have been announced by William A. Hopkins, vice president of **BART MANUFACTURING CORPORATION**, of Belleville, N. J.

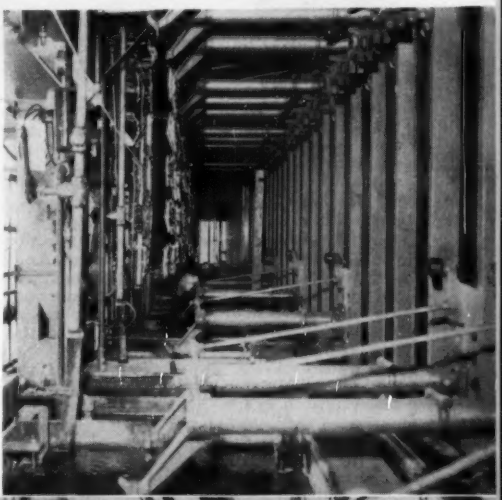
Under the new management, present personnel will be augmented by precious metal plating experts. Expanded facilities for production of bright gold plating to specification, on all types of die casting, have already been added, and other die casting, finishing, and plating facilities for copper, nickel, and chromium will be enlarged to provide complete precision die casting, finishing, and specification plating under one roof.

NATIONAL LOCK COMPANY, Rockford, Ill., has completed the installation of a custom-manufactured, automatic plating machine at an expenditure in excess of $200,000. Christened "Big Bertha" by company officials, the 85-ton apparatus, which covers an area of 3,000 square feet, will modernize and increase the company's facilities for plating die cast products such as refrigerator hardware, of which National Lock is the world's leading manufacturer.

Specific purpose of the new apparatus is to chromium plate zinc die castings. In preparation for chromium plating, it is first necessary to plate the hardware with copper and nickel. The new machine also has a special system to permit application of a lustrous brass finish. William C. Geissman, assistant superintendent of the company's Finishing Division, surmised that many people who are not acquainted with the plating process undergone by hardware think that it consists merely of spraying or dipping in a metallic paint.

Before hardware can be plated, surfaces must be buffed and polished to a mirror-like finish. They are then vapor degreased. After inspection, the hardware is moved to the plating machine and placed upon racks by hand. The racks are conveyed automatically by gigantic arms (Figs. 1 and 2) through the entire two-hour plating cycle, which involves 27 immersions in tanks, 19 of which are rinses. As each rack, or cathode, containing the hardware is immersed in the plating solution, the metal is electrolytically transferred to and made a part of each piece of hardware. Following the chromium application and rinses, the racks are transferred by a robot from the plating machine to another conveyor. There the parts are further rinsed with deionized water and dried in a special chamber. Throughout the cycle, the hardware is untouched by human hands.

The new machine was designed with wider tanks to handle larger parts and has a plating solution capacity of 4,500 gallons. It is equipped with four filters, which purify 3,300 gallons of solution every hour. A 6,000 gallon storage tank was installed in the department for the



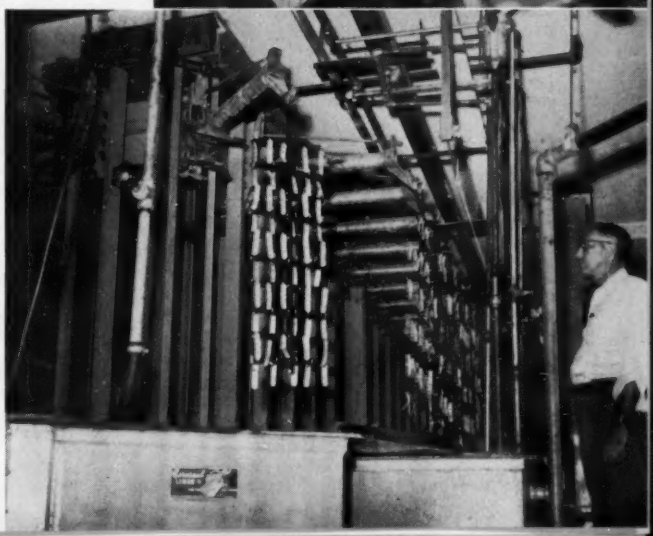


Fig. 1 — (Upper photo) A view down one side of the oval, elevator-type, automatic plating machine. As can be noted, part of the carrier arms of the conveyorized machine are in the "down" position in the solution tanks, and the remainder of the carrier arms are in the "up" or transfer position above the tanks.

Fig. 2 — Albert G. Overbey, foreman in National Lock's finishing department, looks on as hardware units are automatically immersed 27 times as they go through a two-hour copper, nickel, and chromium plating cycle in the new Hanson-Van Winkle-Munning automatic plating machine.

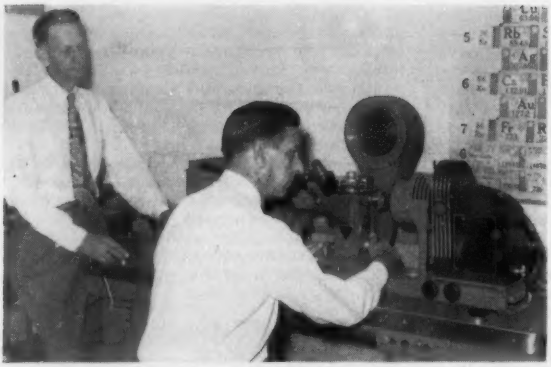


Fig. 3 — Freeman Anderson, chief metallurgist, observes, as Roy McGraw, metallurgist, operates the Bausch & Lomb metallurgical microscope. Equipped with a camera for photographing the microscopic field, it is used to examine structures of steel and zinc die cast products under magnifications ranging from 100 to 1500.

(Photographs courtesy National Lock Co., Rockford, Illinois)

purification of plating solutions.

Ray Herbert, plant engineer, stated that in order to remove fumes from the acids and various plating solutions, an exhaust system was devised which removes 51,000 cubic feet of air per minute, or the equivalent of six air changes per minute in the average house.

As further evidence of the complexity of the finishing operation, Freeman Anderson, chief metallurgist, pointed out that the company utilizes a spectrograph, microscope, and an X-ray unit to maintain quality in its castings prior to the actual plating (Fig. 3).

Leonard Weeg, superintendent of the Finishing Division, declared, "The completed installation of this plating machine climaxes years of intensive study by National Lock personnel to determine the most practical and efficient means of plating zinc die cast products. This machine represents one of the first approaches to automation in this industry and indicates our intention to develop equipment which will improve working conditions of personnel and quality of our products."

NORTON COMPANY, Worcester, Massachusetts, will add to its electric furnace capacity by building a new plant in Huntsville, Alabama, Milton P. Higgins, company president has announced.

This expansion of Norton's electric furnace facilities located since 1910 in Chippawa, Ontario, will be situated on a 100-acre site in an area known as Hobbs Island along the north bank of the Tennessee River.

Ground will be broken late this year with completion expected by the end of 1955. Total cost of land, buildings and equipment is estimated to be $1,250,000.

The new plant will produce Magnorite refractory grain (fused magnesia), fused zirconia, Norbide refractory grain (Norton boron carbide), and special products for the Atomic Energy Commission.

A 16 mm. sound motion picture featuring automatic barrel plating and processing in a true "automation" role is now available from **FREDERIC B. STEVENS, INC.,** Detroit 16, Michigan.

The operational economy obtained from continuous automatic barrel zinc and cadmium electroplating, bright dipping, rustproofing and washing operations is described. The major portion of the film was made in the new Elgin, Illinois, plant of Illinois Tool Works' Shakeproof Division.

In addition to showing the continuous metal finishing and processing cycles, which are handled by single operators, the film features the complete supporting straight-flow "automation" operation from inception of the product through the final finishing treatment.

The film audience is able to see how the straight-flow automation system, employing four Stevens Automatic Barrel Electroplating and Processing Machines, at the new Shakeproof plant moves approximately 500,000 different items through seven major plant departments. No trucks are needed after wire coils

have been brought to cold headers in the screw making department.

To make arrangements for a showing of "Industrial Album" for your plant engineers, your plant operating group or your local trade association call your nearest Stevens sales office or write direct to Frederic B. Stevens, Inc., Detroit 16, Michigan.

C. D. Clawson, president, **FERRO CORPORATION,** Cleveland, Ohio, has announced that Ferro has completed a furnace modernization program for the RCA Estate Appliance Corporation range plant in Hamilton, Ohio. The installation provides the RCA Estate Appliance Corporation with ultra-modern facilities for porcelain enameling its gas and electric kitchen range products.

Mr. Clawson noted that the furnace installed for RCA contains 11 burners, and that it is of the fuel fired, muffle "U," or hairpin type. This particular design is noted for keeping warpage to a minimum and produces economic furnace operations in terms of fuel savings.

The furnace is described as approximately 93 feet in length with a firing zone of 49 feet. It is so built that its capacity can be increased as much as 20 per cent without changing the exterior dimensions of the furnace or effecting any changes to the furnace steel shell or foundations.

The furnace is a fuel fired muffle "U" type, or hairpin type, and is so called because the ingoing and outgoing ware parallel each other. This design permits heat transfer to take place between the cold ingoing ware and the hot outgoing ware, thus giving a gradual heating and cooling cycle. This is a major factor in keeping warpage to a minimum and, of course, is reflected in the economics of the furnace operation as a fuel savings.

The RCA furnace has eleven (11) burners, nine of which are cross fired burners firing into the combustion tunnels under the furnace "V" bottom. The tenth and eleventh burners fire in between the side wall muffle near the top of the rear wall of the furnace. The products of combustion from all burners are channeled behind the muffle side walls, center wall and the preheat flues to stack.

The furnace is equipped with a 73 tube recuperator which utilizes heat from the combustion gases which otherwise would be lost up the stack. The reclaimed heat is used to heat filtered air to a temperature of 400 to 450 deg. F. for use in supplying or supplementing the heat requirements in the ground coat or cover coat dryers.

The furnace is also equipped with a 40 foot long cooling tunnel which cools the fired ware after leaving the furnace to a temperature where it can be more readily handled. The second function of the cooling tunnel, and perhaps the most important, is the removal of heat which otherwise would be dumped into the working area. In cold weather operation, if it is desired, by adjustment of dampers the waste heat can be returned to the building for heating.

As a result of improvements in refining techniques, **THE INTERNATIONAL NICKEL COMPANY OF CANADA, LIMITED,** has initiated production of electrolytic cobalt at its Port Colborne refinery, Ralph D. Parker, general manager of Canadian Operations and assistant vice president of the company, has announced. This marks the first commercial production of electrolytic cobalt in Canada.

Heretofore Inco's entire cobalt output has been marketed as oxides and salts produced at its Clydach, Wales, refinery. Through its new process the company makes available a high purity cobalt which is a fitting companion to its electrolytic nickel.

Cobalt is one of 13 elements recovered from the company's Sudbury District, Ontario, ores. Nickel, of course, is the principal product. The others are copper, platinum, palladium, ruthenium, iridium, rhodium, gold, silver, selenium and tellurium.

The formation of the **AUROCHEM COMPANY** has been announced by the founder, Victor G. Gottlieb. The new company's office and laboratory are located at 125 Canal Street, New York 2, N. Y.

The company will manufacture gold and other precious metal plating solutions and salts, specializing in the production of potassium gold cyanide.

Mr. Gottlieb was formerly chief chemist for A. Robinson and Son, and later in charge of production for the Auromet Corporation.

J. Robert Greenwell

Acquisition of **RELIABLE PLATING CORPORATION**, 1538 West Lake Street, Chicago, has been announced by the firm's new president and treasurer, **J. ROBERT GREENWELL**, formerly vice president of Chrome-Rite Company, Chicago. Vice president of the newly acquired firm will be **JOSEPH B. BECKER**, also formerly with Chrome-Rite Company.

Mr. Greenwell is currently president of the National Federation of Metal Finishers and was chairman of the Chicago Electro-Platers Institute during 1950 and 1951, after serving for several years as a director of the association.

A demonstration of the application of Porcenell, a silicate coating which can be fused to any ferrous metal at moderate temperatures, was presented November 3 at the **PROMAT DIVISION OF POOR AN D COMPANY**, 851 S. Market St., Waukegan, Ill.

Dr. A. E. Chester, vice president of the Promat Division, and William Stoll, president of Allied Porcenell, Inc., discussed the production, application and characteristics of the Porcenells.

The meeting and plant tour were held in the morning, followed by luncheon at the Swedish Glee Club in Waukegan.

A. E. Durkin

A. E. Durkin has announced the formation of a new company, the **AMERICAN METAL PROCESSING COMPANY**. Located at 76 Water St., Wakefield, Mass., the company will specialize in functional plating and processing.

Mr. Durkin was formerly associated with the General Electric Co., where he spent fourteen years as an engineer and specialist on inorganic and organic finishes. He is a member of the Boston Branch of the American Electroplaters' Society.

William J. Stebler, president of **GENERAL AMERICAN TRANSPORTATION CORPORATION**, has announced that General American has signed a contract, with a half-million dollar rights payment, with the Societe Europenne de Revetement Chimique (S.A.) licensing that company exclusively to use and to sub-license General American's Kanigen plating process in several countries and territories abroad. The Societe, a new company to be known as SEUREC, is composed of ten well-established French industrial firms.

Mr. Stebler stated that SEUREC's initial fee of $500,000.00 covers rights to the process, and continuing royalties will be paid, based upon pounds of nickel deposited by SEUREC and its sub-licensees, during the next 20 years. One-half of any sub-licensing fees received by SEUREC will also be paid to General American. The license and sub-licenses include the right to use the registered trade name "Kanigen," which identifies the practice of chemical nickel plating by General American and its licensees.

All rights to the Jetal Process for blackening ferrous metals by oxidation have been acquired by the recently-formed **ELTEX CHEMICAL CORP.**, according to Mark Weisberg, president. Mr. Weisberg has retired as president of the Alrose Chemical Company, subsidiary of Geigy Chemical Corp., the post he held prior to the Alrose Company's merger with Geigy.

Eltex will manufacture and market Jetal and other chemical products, Mr. Weisberg stated. The Jetal Process, which he originated while president of Alrose Company, is a speedy blackening process for irons and steels, applied in approximately five minutes by an immersion method. Permanence is said to be exceptional, as the Jetal finish will not chip, peel, crack or dust off if the metal is bent or cut.

Eltex is in position to make prompt deliveries on Jetal and related products, Mr. Weisberg stated, and to provide full service on application, installations and engineering. Complete information is available from Eltex Chemical Corp., P. O. Box 128, East Side Station, Providence 6, Rhode Island.

HONORS

Six J. B. Ford Division representatives of **WYANDOTTE CHEMICALS** recently received 25-year service watches, including Fred Tholen, sales manager of this Wyandotte, Michigan, organization.

Ford Ballantyne, Jr., vice president of Wyandotte Chemicals and general manager of the J. B. Ford Division, helped present the watches. Recipients of the awards were: Mrs. Evelyn Allen, secretary to Mr. Ford Ballantyne, Jr.; Fred Tholen, sales manager; Keith L. Boyd, Harrisburg, Pa.; Charles T. Dumont, Cincinnati; Morgan J. Canniff, Philadelphia, Pa.; and William J. Wilson, Montreal.

A banquet honoring the 25-year watch receivers and their wives and husbands was held in the Wyandotte Chemica's Club and was attended by over 450 employees and executives. Nearly 900 of the more than 1900 Wyandotte Chemicals employees who have received 25-year watches are still in active service.

NEW POSITIONS

American Chemical Paint Company of Windsor, Ontario, has announced that its technical sales-service staff has been reorganized and enlarged to make possible more effective coverage of the Canadian industrial market. This step provides augmented consultation and service facilities for users of ACP metalworking chemicals.

D. L. MILES is now manager of the Windsor office and plant, and is assisted by **J. BRYCE ROHRER**, technical sales representative. Staff members include **O. E. CRISLER**, technical service representative; **JOHN LINDEN**, technical representative specializing in steel mill operations; and **F. J. WALSH**, technical sales-service representative, Ontario Division.

The appointment of **FREDRIC E. MERRIMAN** as a Sales Engineer for the Whitfield Chemical Company, 14225 Schaefer, Detroit, Mich., has been announced by C. Whitfield Smith, company president. His territory will include parts of Ohio, Pennsylvania and New York.

A native of Hartford, Ohio, Mr. Merriman will remain located in that city.

Front row (left to right): Ford Ballantyne, Jr., Mrs. Evelyn Allen, Fred Tholen. Rear (left to right): Keith L. Boyd, Charles T. Dumont, Morgan J. Caniff, William J. Wilson.

T. Kenneth Haven

T. KENNETH HAVEN, former executive vice president of Reichhold Chemicals, Inc., has been appointed vice president of the Detrex Corporation of Detroit, manufacturer of chemicals, metal-cleaning machinery and dry-cleaning equipment.

A. O. Thalacker, Detrex president, said Mr. Haven's assignments will include the study of proposed expansion programs in this country as well as foreign trade investigations and their ensuing operations. His appointment is effective as of Nov. 1.

Mr. Haven was associated with Reichhold for 12 years as executive vice president, general manager and director. He is also a founding director of the Ferndale (Mich.) National Bank, a director of Temprite Products Corporation, Birmingham, Mich., and a trustee of Grace Hospital, Detroit.

Mr. Haven received his A.B. degree from the University of Michigan in 1928, his M.B.A. the following year, and his Ph.D. in 1940. From 1930 to 1936, he was a member of the staff of business research in the Business Administration School at the University of Michigan, where he also taught a graduate course in corporate finance.

From 1936 to 1942, he was manager of the Underwriting Department of Watling, Lerchen and Company, Detroit, Michigan.

A world traveler on many occasions, Mr. Haven has had wide experience abroad, as well as in the United States, in corporate financing, mergers, and plant construction.

DR. KENNETH G. CARROLL has joined the staff of the Bayonne Research Laboratory of The International Nickel Company, Inc., as head of the newly-created Physics Section, according to an announcement by Dr. W. A. Wesley, manager of the laboratory. Dr. Carroll will be concerned with the application of such procedures as X-ray diffraction, radiography, X-ray fluorescence and electron microscopy to the research problems being investigated at the Bayonne laboratory.

Prior to joining International Nickel, Dr. Carroll had been with the United States Steel Corporation.

Dr. Carroll graduated from Carnegie Institute of Technology with a Master of Science degree in 1935, and Yale University in 1939 with a Doctor of Philosophy. During his graduate studies, he was elected to membership in the American Physical Society. Dr. Carroll served as a research physicist with the National Advisory Committee of Aeronautics at Langley Field and Cleveland, Ohio, during World War II.

W. H. Vastine

E. W. GLAESER, president of Gasway Corporation, manufacturer of metal treating and roller coating equipment, has announced the appointment of **W. H. VASTINE** as plant superintendent.

Mr. Vastine has held various positions in his 15 years with Gasway, recently heading up the pany's development department. In his new capacity he will retain this function in addition to having complete charge of production.

CHEEVER H. ELY has been appointed Cleveland district manager by Norton Company, succeeding **FRED P. HAYS,** who has retired after 38 years with the company.

Mr. Ely has been with the Norton Company since 1927. After completing the sales training course, he spent a year in the Detroit office, before going to the Cleveland warehouse in 1929 as office manager. In 1937, he was appointed a field engineer, and in 1938 an abrasive engineer in the Dayton, Ohio, area.

Mr. Hays first worked in the Norton Company's grinding machine division and the mechanical laboratory before going into sales work in 1919.

(Left to right) Cheever H. Ely, Fred P. Hays, William C. Davidson

WILLIAM C. DAVIDSON will replace Mr. Ely as abrasive engineer in the Dayton area. Prior to coming to the Norton Company in 1946, he spent ten years with Frigidaire Division of General Motors Corporation in Dayton.

Richardson-Allen Corporation, manufacturer of selenium rectifiers, chargers and electronic specialties, has appointed **ANDREW H. BAXTER,** 412 Albee Bldg., Washington, D. C., as representative throughout the District of Columbia and in Maryland and Virginia.

Mr. Baxter has specialized in sales representation, and has also conducted his own business as a manufacturer's representative.

W. Beckhardt

W. BECKHARDT is the new technical service representative in the Norristown, Pa., area for Oakite Products, Inc., manufacturer of industrial cleaning and metal treating materials.

Mr. Beckhardt, who was formerly with the Eastern Tank Maintenance Co. of Philadelphia, completed an intensive eight-week training course at the company's New York headquarters and in the field before taking up his new assignment.

HENRY S. WINGATE, vice president and a director, was elected president of The International Nickel Company of Canada, Limited, at a meeting of the board of directors following the annual meeting of shareholders, Dr. John F. Thompson, chairman of the board, has announced. Mr. Wingate was also elected to membership on the Executive Committee of the company and to the presidency of its United States subsidiary, The International Nickel Company, Inc.

At the same time, **F. M. A. NOBLET,** assistant treasurer, was elected treasurer of the company and also treasurer of its United States subsidiary.

Mr. Wingate succeeds **DR. PAUL D. MERICA.** Mr. Noblet succeeds **WILLIAM J. HUTCHINSON.** Dr. Thompson stated that Dr. Merica and Mr. Hutchinson, both of whom have attained retirement age, had asked that they not be re-elected as officers. However, they will continue as directors and members of the Executive Committee.

Dr. Thompson announced also that as a part of the executive rearrangements, **J. ROY GORDON,** vice president and a director, will transfer from Copper Cliff, Ontario, and will make his headquarters in New York City.

The appointment of **C. T. HALLER, JR.,** as head of the Pittsburgh, Pennsylvania, Technical Field Section of the Development and Research Division has been announced by The International Nickel Company, Inc.

Mr. Haller succeeds **WILLIAM H. SPARR, JR.,** who has been transferred to New York and appointed in charge of the Steel Section of the company's Nickel Sales Department.

A metallurgist, Mr. Haller joined International Nickel in January, 1945, as a member of the Pittsburgh Technical Field Section. He graduated from the Carnegie Institute of Technology.

M. S. PANCOAST has been appointed to represent the Metal Processing Department of the Pennsylvania Salt Manufacturing Company in its New York

territory. He succeeds Clinton S. Burhans, who retired as a result of injuries incurred in an automobile accident five years ago. His headquarters are in Syracuse.

Mr. Pancoast was graduated from Pennsylvania State University in 1951, where he majored in chemistry. Until joining Pennsalt Chemicals in 1953, he was a member of the faculty of Ridley Park High School.

Following a one year assignment to administrative duties in the Metal Processing Departments' Philadelphia headquarters, Mr. Pancoast completed the company's technical sales training program. In his new capacity, he will handle the complete line of Pennsalt metal cleaners as well as compounds used in the Pennsalt Fos Process. Included in the cleaner line are chemicals for cleaning all metals and for etching and treating aluminum. The Fos line includes Foscoat chemicals used for cold extrusion and Fosbond chemicals used for paint bond.

J. Frank Daly

J. FRANK DALY has been appointed resident representative in Hartford, Connecticut, for Wyandotte Chemicals Corporation.

Mr. Daly is a graduate of Holy Cross and Trinity Colleges, and has taken advanced courses at Yale. He has many years experience in New England and New York State servicing users of industrial cleaning and processing materials. He joins George Haas and Edward Rollfs in bringing Wyandotte service to New England metal processors.

Election of **KENNETH J. SHEA** to vice president of sales for the International division has been announced by the board of directors of Minnesota Mining & Manufacturing Co., St. Paul, Minnesota.

His new responsibilities include general sales administration of all foreign subsidiaries, European export sales and supervision of all international product sales managers.

MacDermid Incorporated, Waterbury, Connecticut, has announced the appointment of **WALTER A. DYBER** as technical sales representative in the "Berkshire Territory." Mr. Dyber will service customers in Winsted, Torrington, Springfield, Pittsfield, Holyoke, Northern New York State, and in the Hartford area.

Walter A. Dyber

Mr. Dyber was formerly associated with Pratt & Whitney Aircraft, having served this company as supervisor of finishing, plant and plating room layout, and process development. His eighteen years in the above capacities qualifies Mr. Dyber to service any and all plating and metal finishing operations. A member of the Hartford Branch A.E.S., and the S. & P. A., Mr. Dyber will make his headquarters in his home in Manchester, Connecticut. He is the author of several articles on Aircraft Engine Overhaul Techniques.

Perfection Industries, Inc., Detroit 4, Mich., has announced the appointment of **BUCK ROGERS** as general sales promotion manager and advertising director. Mr. Rogers will concern himself with the development of a hard chromium plating application which provides a more perfect bond so that the plate will resist peeling and chipping on broaches, cutting tools, general machine parts and general tools.

Mr. Rogers has been associated with Royal Oak Heart Treat, Inc., Fox Steel Treating, Ralph Sharp Advertising Agency, DeLuxe Hard Chrome, and Russ Green Advertising Agency. He was awarded Detroit's first "Oscar" award for top salesmanship in Detroit by the Detroit Sales Executives' Club in 1954. He will serve as one of the speakers for the 1954 United Torch Fund Drive.

LYLE E. FROHBERG'S appointment as vice president in charge of sales has been announced by the Rinshed-Mason

Company of Detroit. Rinshed-Mason nationally markets a complete line of automotive and industrial finishes, and has plant installations in Anaheim, California and Windsor, Ontario, Canada.

Mr. Frohberg's connection with the paint industry dates from 1936, and with Rinshed-Mason since 1948 where he has advanced through various sales executive positions.

L. V. Schowalter

L. V. SCHOWALTER has joined the organization of Weaver Engineering & Supply Co., Inc., 718 W. Main St., Grand Prairie, Texas. James E. Weaver, president, states that Mr. Schowalter will be chiefly responsible for the promotion of the supply items distributed by this concern in the southwestern states — items manufactured by Enthone, Inc., Formax Mfg. Co., R. O. Hull & Co., Dixon & Rippel, and others.

COOPER M. SCHLEY has joined the sales organization of the Pennsylvania Salt Manufacturing Company.

With headquarters in Birmingham, Mr. Schley will represent the Metal Processing and Maintenance Chemicals Departments in the Company's southern territory. He will handle Pennsalt's Fosbond-Foscoat products for the metalworking industries and a diversified line of metal cleaners and maintenance chemicals serving the transportation and manufacturing fields.

Mr. Schley received a degree in Mechanical Engineering from the University of Virginia in 1949, served as an Air Force pilot in the grade of Major during the War, and until he joined Pennsalt was associated with the Tennessee Coal & Iron Division of the United States Steel Corporation.

Magnus Chemical Co., Inc., Garwood, N. J., has appointed **ROBERT L. KAISER** as marketing development manager. He will concentrate on sales planning, training, and sales promotion coordination.

Mr. Kaiser holds an A.B. degree in economics from Dartmouth College, from which he graduated Phi Beta Kappa and second in his class. Prior to five years as a Field Artillery officer in World War II he was with N. W. Ayer & Son, advertising agency.

Since 1946, Mr. Kaiser has managed the Dif Corporation, manufacturer of consumer cleaning specialty products and closely affiliated with Magnus. He is now executive vice president and general manager of the Dif Corporation and the Larkin Soap Co., wholly owned subsidiary of Magnus. Mr. Kaiser will continue in these positions with Dif and Larkin in addition to taking on his important new job in Magnus.

PLATT K. WIGGINS has been appointed sales representative covering western New York State for the Detrex Corporation of Detroit. Detrex manufactures industrial chemicals, degreasing machinery, and drycleaning equipment.

Mr. Wiggins, a native of Larchmont, N. Y., is a 1946 graduate of Cornell University, where he received his A.B. degree. He is affiliated with the American Electroplaters Society. Prior to joining Detrex, Mr. Wiggins was a member of the sales staff of Proctor & Gamble for four years.

Magnuson Products Corp. has appointed two new sales representatives, it has been announced by William F. Nickerson, sales manager for the company.

In Illinois, working out of Chicago, and serving the surrounding counties, **HARRY R. JOHNSON** will be the new representative. A native of Chicago, Mr. Johnson has an industrial background in preparatory and finishing operations.

Operating in counties west of the Philadelphia area, and covering the territory from Allentown to Baltimore, **WAYNE J. STREAVIG** will be the new representative. Mr. Streavig previously operated his own plating firm, and is a past officer of the A.E.S.

Appointment of **ROBERT H. TEUBER** as technical service engineer in the coated abrasives laboratory was announced by Minnesota Mining & Manufacturing Co., St. Paul 6, Minnesota.

He joined 3M in 1950 as a production industrial engineer. Since 1952 he has been abrasive quality control supervisor.

Mr. Teuber graduated from the University of Minnesota in 1950 with a B.M.E. degree. He now lives at White Bear Lake, Minn.

In addition to coated abrasives, 3M manufactures "Scotch" brand cellophane, electrical, industrial, masking, filament and sound recording tapes; adhesives and coatings; roofing granules; reflective sheeting; plastics; ribbons and laces; printing accessories; office duplicating equipment and chemicals.

Richardson-Allen Corporation, College Point, Long Island, N. Y., manufacturer of selenium rectifier units, has appointed **WALTER M. WYMAN,** 1346 Chestnut Street, Philadelphia, Pa., sales representative for Eastern Pennsylvania and Southern New Jersey. Mr. Wyman has been associated with the electrical field for the past thirty-five years and has been active as a manufacturers' representative in the Philadelphia area.

Appointment of **MONTAGUE-HARRIS AND CO.** as exclusive southern California, Arizona and southern Nevada sales representatives for the Almco metal finishing line has been announced by Robert Trow, vice president and general manager of **ALMCO DIVISION, QUEEN STOVE WORKS,** Albert Lea, Minnesota.

As Almco representative, Montague-Harris and Co. will offer an intergrated line of machinery, equipment and compounds for the barrel finishing of metal parts. In addition, they will make engineering assistance available to manufacturers in their area for the solution of specific metal finishing problems.

Montague-Harris and Co. is located at 3509 East Olympic Blvd., Los Angeles, California.

B. J. Hedger

B. J. HEDGER has been appointed national sales manager of the Industrial Division of Binks Manufacturing Company, Chicago, Illinois. He was formerly Chicago district sales manager.

The Industrial Division produces spray painting booths, air supply and exhaust systems, and engineers installation of spray painting equipment.

Mr. Hedger joined the sales staff of the Binks Company in 1928. In 1937 he became Mid-West divisional sales manager, and in 1940 was promoted to Chicago district sales manager. Mr. Hedger also served as manager of the company's Ceramic Division from 1940 to 1949.

The Industrial Sales Department of The Permutit Company, New York, N. Y., has announced the appointments of **K. G. BARNHILL** and **E. J. CONNELLEY** to the positions of sales engineer at Boston, Mass., and Cincinnati, Ohio, respectively.

With many years of sales and service experience in the fields of water treatment, both are well qualified to give counsel on any water conditioning subject.

Completing a sales agreement recently in Los Angeles are (left to right): Ray Krieger, Don Montague, Dick Johnson, all of Montague-Harris and Co. and Robert Trow, vice president and general manager of Almco.

TRAINING COURSES

A course in electroplating is being given at the Temple Technical Institute Evening School, 1808 Buttonwood Street, Philadelphia, Pennsylvania. Registration was held October 4, 1954. Classes are held on Monday evenings, with a lecture from 7 to 8 P.M., and a laboratory following from 8 to 10 P.M.

Called **"PRINCIPLES AND PRACTICE OF ELECTROPLATING,"** it is sponsored by the Philadelphia Branch of the A.E.S. Its purpose is to provide electroplating personnel and people in allied fields, such as metallurgists, electrotypers, and metal fabricators with an understanding of the principles of electrodeposition and the application of these principles to electroplating practice. The text used is "Modern Electroplating." The course is taught by Dr. Samuel Heiman, of the Philadelphia Rust Proof Co. Dr. Heiman is second vice president of the A.E.S.

The entire course covers three different semester's work. Semester III, which was given previously in the Fall of 1951, is now being presented. Previous attendance is not a prerequisite for entrance to the course now in progress, and therefore, it will be of interest to both new and former students. Those passing all three semesters will be granted a "Certificate of Proficiency" by the Temple Technical Institute.

SOCIETIES

Some 5,000 paint manufacturers, suppliers, technical men, equipment manufacturers, and technical service representatives attended the **66TH ANNUAL CONVENTION** of the **NATIONAL PAINT, VARNISH & LACQUER ASSOCIATION**, the **32ND ANNUAL MEETING, FEDERATION OF PAINT AND VARNISH PRODUCTION CLUBS**, or the **19TH PAINT INDUSTRIES' SHOW**, all held during the week of November 15 in the Palmer House, Chicago. Sessions of the National Paint, Varnish & Lacquer Association were held during the first part of the week (Nov. 16 to 18), and technical sessions of the Federation of Paint and Varnish Production Clubs were held November 18 through 20.

The 19th Paint Industries' Show was held during the entire week to enable both paint industry groups to view the exhibits of equipment and materials used in various phases of the paint industry. Views of some of the exhibits are shown in the photographs which follow.

Fig. 1—The exhibit of the Sherwin-Williams Company (right) featured Ozlo 18M, a co-fumed leaded zinc oxide containing monobasic lead sulfate. At left is shown a view of the booth of the Macbeth Corp., Newburgh, N. Y., in which the Macbeth Industrial Color Matching Skylight, the Macbeth-Munsell Disk Colorimeter, the Macbeth Laboratory Model pH Meter, and a small daylight lamp designed for the Federation's Color Aptitude Test were displayed.

Fig. 2 — (Above) A view of the exhibit of Shell Chemical Corp.

Fig. 3—The booth of the Harshaw Chemical Company featured the company's line of driers, cadmium red and yellow pigments, and other specialty pigments for paints and varnishes. Vinyl stabilizers for organosols and plastisols were shown.

Fig. 4—(Left) At one of the booths in the Lacquer Information Center, G. S. Levey (right), president of the Spee-Flo Co., Houston, Texas, describes the design and operation of the paint heater manufactured by his company. The Lacquer Information Center was sponsored by: Bede Products, Inc., Carbide and Carbon Chemicals Co., The DeVilbiss Co., Enjay Co., Inc., Hercules Powder Co., Shell Chemical Corp., and the Spee-Flo Company.

(PRODUCTS FINISHING Staff Photos)

The **AMERICAN ELECTROPLATERS SOCIETY** Executive Board has expressed satisfaction with the progress made

A.E.S. officials review plans for the 1955 Industrial Finishing Exposition. (Left to right): Francis T. Eddy, third vice president; Dr. Samuel Heiman, second vice president; Eugene L. Combs, convention committee general chairman; Clyde Kelly, first vice president; George Burnley, advertising manager, "Plating" magazine; Dr. R. A. Schaefer, president; P. Peter Kovatis, executive secretary; Dr. George P. Swift, past president; Harold E. Bartlett, exposition manager; Albert W. Erickson, Jr., space sales manager, 1955 Industrial Finishing Exposition.

In planning the 1955 **INDUSTRIAL FINISHING EXPOSITION**, which is scheduled to run concurrently with the **A.E.S. 42ND ANNUAL CONVENTION** at Cleveland in June, 1955. Progress reports made by the various committees in charge of plans for the exposition indicate the affair will be one of the largest ever held.

The **NATIONAL FEDERATION OF METAL FINISHERS** has announced the election of officers for the 1954-55 term. **J. ROBERT GREENWELL**, Reliable Plating Corporation, Chicago, was elected president. Mr. Greenwell is a past chairman of the Chicago Electro-Platers Institute and was formerly second vice president of the Federation.

FRANK KAISER, Long Island Mechanical Plating Co., Long Island City, N. Y., was re-elected first vice president. **LAWRENCE J. HAY**, Plating Service Co., Chicago, was elected second vice president. **ALFRED A. D'AGOSTINO**, Alberts Plating Works, Inc., Brooklyn, N. Y., was elected secretary-treasurer. Mr. Hay and Mr. D'Agostino have been appointed to the N.F.M.F. board of directors.

NECROLOGY

L. JOSEPH MOYES, Hanson-Van Winkle-Munning Co. sales representative in the states of Wisconsin and Minnesota, died October 25 at the Milwaukee Hospital after a long illness. He was 37.

Prior to joining H-VW-M in 1952, he was with the Diversey Corp., and worked for many years in the metal finishing field. A resident of Milwaukee since 1941, Mr. Moyes was a member of the American Electroplaters' Society and the Milwaukee Athletic Club.

CLIFFORD S. ANDERSON, 76, advisory counsel for Norton Company, Worcester, Massachusetts, died November 10.

He started his career at Norton Company in 1911 and was successively assistant counsel, counsel, general counsel, and became advisory counsel in 1947. He had also been secretary and clerk of the board of directors.

A leader in civic affairs since 1915, Mr. Anderson was a former president of Worcester Chamber of Commerce, the Associated Industries of Massachusetts, vice president and director of the National Association of Manufacturers, and a trustee of the National Industrial Conference Board, Inc.

The death of **DR. RICHARD H. PATCH**, vice president—operations, has been announced by E. F. Houghton & Co., oil, leather and chemical manufacturer, Philadelphia.

Dr. Patch, who was 66, died in Hot Springs, Ark., on November 13th. He had been with Houghton since 1926. He held an A.B. and doctorate from Harvard University. From 1914 to 1926 he was a plant official at the Midvale Co., Philadelphia.

He was a former president of the Philadelphia Chapter, American Society for

Metals. He was a member of Houghton's Board of Directors, executive vice president of E. F. Houghton & Co. of Canada, Limited, and treasurer of the Houghton Vix-Syn Co., Hopkins, Minn.

NEW BOOKS

Organic Coating Technology—Vol. 1, by Henry Fleming Payne. 674 pages. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. Price, $10.00.

Discussed in this volume are the chemistry, manufacture, and use of oils, resins, varnishes, high polymeric materials, plasticizers, and driers used for clear coatings and vehicles for pigmented coatings.

Although basic theory is discussed, practical aspects of these subjects are emphasized, and the book contains many specific formulations based on commercial materials, which are referred to by trade names.

An excellent manual for new technicians in the paint industry, experienced men will also take interest in the new developments and procedures outlined herein.

Modern Masking Materials and Methods for Fabrication and Spray Finishing

By Arthur P. Schulze

64 Pages *47 Illustrations*

Written for department superintendents, shop foremen, process and finishing engineers . . . this manual is a source of ideas for saving time, cutting costs and getting better product quality.

Price $1.00

PRODUCTS FINISHING

431 Main St., Cincinnati 2, Ohio

The Technology of Solvents and Plasticizers—By Arthur K. Doolittle. 1056 pages. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. Price, $10.00.

Arranged such that the scientifically trained reader may refer to special sections on theory, while others may omit these details, it includes complete treatment of the theory of viscosity and solvent action, as well as behavior of solvent systems over a wide range of variables. Approach to material is such that the reader is furnished with sufficient information to arrive at his own answer to a specific formulating problem. Included are complete data on 161 solvents and 131 plasticizers commercially available, treated individually and in charts.

Its value as a reference volume will make it a worthwhile addition to any laboratory concerned with solvent action.

Chromium Plating—First Edition, by Paul Morisset, J. W. Ostwald, C. R. Draper, and R. Pinner. 586 pages. Published by Robert Draper, Ltd., 83/85 Udney Park Rd., Teddington, Middlesex, England.

Discusses all aspects of production, as well as properties and applications of all types of chromium electrodeposits, and processes such as grinding, polishing, machining, copper and nickel plating, racking, testing and inspection of deposits, control and analysis of solutions, health hazards, and waste disposal.

This work is valuable to platers, chemists, foremen, managers and superintendents, and to engineers and designers concerned with chromium plating.

Methods of Testing Thickness of Electrodeposits, by Harold J. Read and F. Ross Lorenz. Published by the American Electroplaters' Society, 445 Broad Street, Newark 2, New Jersey. Price, $1.35.

This is a report of A.E.S. Research Project No. 7, conducted at the Division of Metallurgy, Pennsylvania State University, State College, Pennsylvania.

It contains two sections, entitled "Comparison of Methods for Nickel on Steel,"

and "Comparison of Methods for Acid Copper on Steel." Complete details are given on each method, including preparation of specimens for tests, experimental conditions, methods of measurement, and accuracy of measurements. Conclusions giving methods acceptable for production of thickness standards and reproducibility of methods used are also presented.

Materials and Processes—Second Edition, by James F. Young. 1074 pages. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. Price, $8.50.

Written to present a broad study of the materials and engineering processes employed by the design engineer, and thus to provide information directly useful in the selection of materials useful for design, it is intended for convenient reference as well as textbook use, particularly by those having product development, design, production, processing, quality, and application responsibilities.

The second edition has been revised so as to expand coverage of non-metallic materials, construction materials, and many materials and processes used by the product industries. It also includes the latest developments in physical metallurgy and chemistry, both in theory and available materials.

This book considers chiefly the materials and processes used in manufacturing electromechanical products, such as metallographic examination, corrosion and tarnishing, non-metallic materials, casting processes, hot and cold working processes, machining, and testing materials.

The Porcelain Metal Products Co. of Carnegie, Pennsylvania, has announced publication of the first **"LIFETIME PORCELAIN ENAMEL INDUSTRIAL SIGN CATALOGUE."**

J. R. Sweeny, president, points out that Danger, Caution, Safety First, Traffic, and miscellaneous signs are now available in lifetime porcelain enamel.

These beautiful signs in appropriate true colors are suitable for inside and outside use and withstand the most adverse conditions, thus eliminating periodical replacement.

Write Porcelain Metal Products Co., Carnegie, Pennsylvania, for **CATALOGUE NO. P. 7.**

Cleaning and Preparation of Metals for Electroplating, by H. B. Linford and E. B. Saubestre. Published by the American Electroplaters' Society, 445 Broad Street, Newark 2, New Jersey. 95 pages. Price, $3.50.

This is a report of A.E.S. Research Project No. 12, conducted at Columbia University, New York, N. Y. Four topics are presented: "Degreasing Evaluation Tests," "Oil Spreading Rates," "Sensitivity of Evaluation Tests," and "A Summary of Degreasing Evaluation Tests."

Degreasing evaluation tests are accomplished by a method called sequential testing, which detects the relative sensitivity of the tests in detecting residual soil after alkaline cleaning.

Oil spreading rates of several oils on steel surfaces are determined and their effect on the waterbreak and atomizer tests is assigned.

Sensitivities of degreasing evaluation tests are compared when oil is present as a continuous film rather than as droplets. Finally, a summary of the degreasing evaluation tests containing the conclusions which the authors drew from this work is presented.

meetings

OF INTEREST TO FINISHERS

Dec. 3. Annual Technical Session, Detroit Branch, A.E.S., Statler Hotel, Detroit, Mich.

Dec. 6-7. Mid-Year Meeting, Institute of Appliance Manufacturers, Netherland Plaza Hotel, Cincinnati, Ohio.

Jan. 29, 1955. Annual Educational Session and Banquet, Chicago Branch, American Electroplaters' Society, Conrad Hilton Hotel, Chicago, Ill.

Mar. 26, 1955. Annual Tri-State Regional Meeting, American Electroplaters' Society, Columbus, Ohio.

June 20-23, 1955. 42nd Annual Convention and 4th Industrial Finishing Exposition, American Electroplaters' Society, Municipal Auditorium, Cleveland, Ohio.

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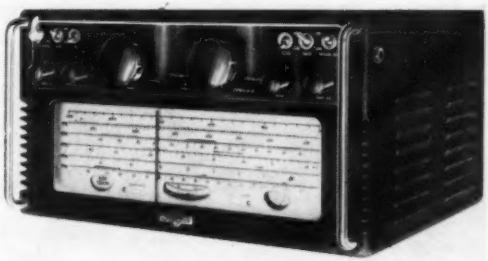

Stratton & Co. Ltd., Birmingham, England, manufacture "Eddystone" short-wave receivers. One large communications receiver is made especially for International Marine Radio Company and is of the type installed in the "Queen Mary."

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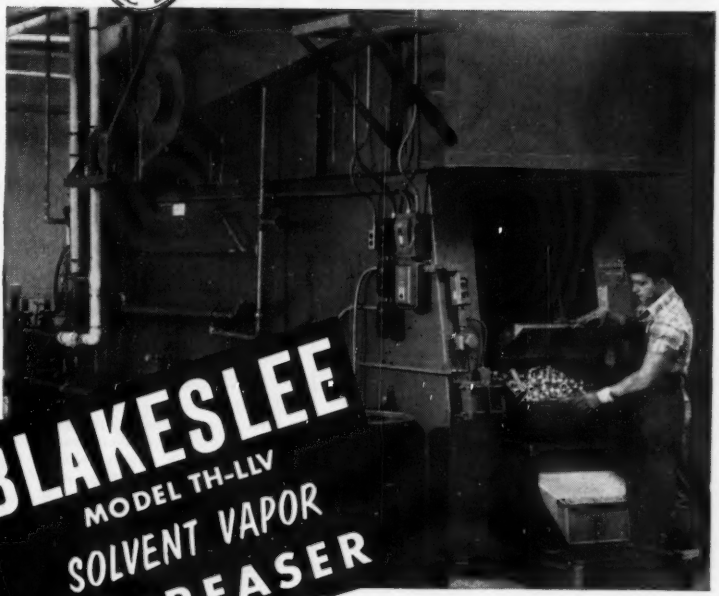

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33. Bulletin No. 536, available from Stow Mfg. Co., 123 Shear St., Binghamton, N. Y., illustrates and describes four small light-weight flexible shaft machines manufactured by the company. Specifications are listed and photographs show machines in use.

34. Thierica Spray Masks. How to plan and order spray masks, types of masks for various finishing requirements are discussed in a folder available from Thierica Studio, 900 Matilda, N. E., Grand Rapids, Michigan. The steps in progressive application of multiple colors are illustrated and explained.

35. Niagara Aero Heat Exchanger. Bulletin No. 120, available from the Niagara Blower Co., 405 Lexington Ave., New York 17, N. Y., describes the operation of Niagara Aero Heat Exchangers used in cooling or controlling temperatures of industrial liquids. Operation and application of the equipment is illustrated by diagrams and installation photos.

36. Ucilon Protective Coatings. A folder being distributed by United Chromium, Inc., 100 E. 42nd St., New York 17, N. Y., describes Ucilon Protective Coating Systems and lists the corrosive chemicals which the coating systems are designed to control. The various Ucilon Protective Coatings are listed by number and described, and a chart showing the proper combination of coatings for various purposes is included.

37. Automatic Cleaning Process. A bulletin describing the Bendix Ultrasonic Cleaner is available from the Pioneer Central Division of the Bendix Aviation Corporation, 2700 Hickory Grove Road, Davenport, Iowa. Along with a description of the cleaner, sections are included on economy of operation, speed, efficiency, and versatility of the method, its applications, and the engineering facilities available at Bendix. The Ultrasonic Cleaner utilizes high frequency sound waves to agitate the cleaning solvent or solution used.

38. Centrifugal Pumps. Available from Industrial Filter & Pump Manufacturing Company, 5904 Ogden Ave., Chicago 50, Ill., is an eight page bulletin on vulcanized, rubber lined, centrifugal pumps, and stainless and cast steel centrifugal pumps. Besides giving detailed specifications and describing the design and construction features, this bulletin includes performance curves for the various models.

39. Vapor Spray Degreaser. A bulletin describing high production vapor spray degreasing may be obtained from the Manufacturers Processing Co., 1354 Hilton Rd., Detroit 20, Michigan. Complete data on the Manpro M-121 vapor degreaser is given, including dimensions, capacity, heat input, operational details, and advantageous features.

40. Black Oxide Finish. Advantages of the Jetal Process for protecting and decorating irons and steels with a black oxide finish are fully detailed in a new folder offered by Eltex Chemical Corp., 41-45 Seekonk St., Providence 6, R. I.

41. Metal Finishing and Plating Equipment. A bulletin being distributed by Jelco Finishing Equipment Corp., 153 East 26th St., New York 10, N. Y., lists the entire line of metal finishing and plating equipment and specialties plus a list of data useful in a plating shop.

42. Clepco Catalog Sheets. The Clepco XAX2 Warning Alarm and Clepco fused quartz radiant heaters are discussed in folders availab'e from the Cleveland Process Co., 1965 E. 57th St., Cleveland 3, Ohio.

43. Copper Plating Manual. The Lea Manufacturing Company, Waterbury 20, Connecticut, is distributing a technical manual on the Lea Copper-Glo process for bright copper plating. Included are sections on operation and makeup, trouble shooting, analytical procedures, and Hull Cell control.

44. Drum Handling Equipment. A pamphlet giving complete specifications and photographs of Morse drum handling equipment and accessories, including drum rotators, cradles, trucks, lifting hooks, and plug wrenches is available from Morse Manufacturing Co., Inc., 762 W. Manlius St., East Syracuse, New York.

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45. Precision Tumbling. SlideHoning, a precision tumbling process, is described in a booklet by the BMT Manufacturing Corporation, 103 E. 9th St., Elmira Heights, New York. Specifications of the tumbling unit, typical applications, and available accessories are included.

46. Chromate Finishing Data. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md., has issued a file of technical literature on Iridite Chromate Conversion Coatings for prevention of corrosion and paint-base treatment on non-ferrous metals. It gives information on metals to be treated and finishing processes, in addition to detailed technical information sheets, offering general technical and government specification data, and specific operating instructions for individual processes.

47. Protective Closures. Available from Protective Closures Co., Inc., 2207 Elmwood Avenue, Buffalo 23, N. Y., is an illustrated file folder describing the company's complete line of threaded and non-threaded caps and plugs for safeguarding products in process, storage, or transit. Included are price lists for polyethy.ene closures known as CaPlugs.

48. Water Demineralizer. The Barnstead Still & Sterilizer Co., has published Bulletin No. 128, which describes in detail the Model BD-2 Barnstead Pressure Bantam Water Demineralizer. The bulletin gives complete details as to how the demineralizer is used in industry.

A complete description of the ion-exchange process and how ionizable impurities are removed is included. A copy of Barnstead Pressure Bantam Bulletin No. 128 may oe had by writing to Barnstead Still & Sterilizer Co., 130 Lanesville Terrace, Forest Hills, Boston 31, Mass.

49. Mechanized Equipment. A folder entitled "Ransomation" is available from N. Ransonoff, Inc., North Fifth and Ford Blvd., Hamilton, Ohio. The folder contains photographs and descriptions of Ransonoff metal finishing equipment including ultrasonic cleaners, deburring machines, chip separators, burnishing machines, complete finishing systems, and specialized equipment.

50. Buffs and Polishing Wheels. The complete line of precision made buffs and polishing wheels available from American Buff Co., 2414 S. LaSalle St., Chicago, Ill., is described in an illustrated catalog available from the company. In addition to a listing of the properties of the various wheels and buffs, recommendations are made for the proper buffing equipment and methods to use for finishing various metals. A conversion table provides information on surface speeds obtained with various arbor speeds and wheel diameters.

51. Identification of Plated Products. The Kocour Identification Set, Model PIA, used for identification of cadmium, tin, silver, lead, nickel, chromium, zinc, and chromate conversion coatings, is described in Form ZB 25, available from Kocour Co., 4814 S. St. Louis Ave., Chicago 32, Illinois.

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52. Zeo-Flo Softeners. Available from Cochrane Corp., Philadelphia 32, Pa., is Publication 4505-A, describing Zeo-Flo Sodium Zeolite Softener. Operation, design, dimensions, and capacities are discussed.

53. Industrial Finishing System. Available from the R. C. Mahon Co., Detroit 34, Michigan, is Catalog No. A-655, containing photographs and descriptions of Mahon equipment for the finishing industry. Entitled "Mahon Industrial Equipment," it describes Mahon installations of complete finishing systems, metal cleaning and pickling equipment, spray booths, drying and baking ovens, dust collecting equipment, and other units of special production equipment.

54. Silicone Coating. Examples of the application of Sicon heat resistant finishes are cited to show the advantages of this coating in a brochure available from Midland Industrial Finishes Co., East Water St., Waukegan, Illinois.

55. Alodine No. 1200 Folder. An illustrated folder describing the use of Alodine No. 1200 to enhance the corrosion resistance and paint bonding properties of aluminum, is being distributed by American Chemical Paint Co., Ambler, Pa. The folder contains a flow sheet and equipment specifications for Alodizing by an immersion process as well as by means of a spray process. Scope of the process in protecting aluminum, characteristics of the coating, and suggested applications are covered.

56. Vapor Degreaser. A booklet available from G. S. Blakeslee and Co., 1844 S. Laramie Ave., Chicago 50, Ill., shows operation, design and construction features, and applications and advantages of Blakeslee degreasers. Auxiliary solvent stills and other Blakeslee products are also shown.

57. Filtration Equipment Catalog. Disc filters, pressure filters, vacuum stills, cartridge filters, flotation equipment, and oil conditioners manufactured by the U. S. Hoffman Machinery Corp., Industrial Filtration Div., 219 Lamson St., Syracuse 6, N. Y., are illustrated and described in Bulletin A-943 available from the company.

58. Vacuum Metalizing. A folder containing a reprint of an article on vacuum metallizing from the "Rohm and Haas Reporter" is being distributed by the Red Spot Paint and Varnish Co., Evansville 8, Indiana. Vacuum metalizing is explained, applications are noted, and coating requirements for its use are discussed. Glossary of terms used in coating plastics and high vacuum metalizing is also given.

59. Centrifugal Dryers. A folder showing photographs of New Holland Kreider Centrifugal Dryers and citing the advantages in their use may be obtained from New Holland Machine Co., New Holland, Pa. Specifications are given for these dryers, which are recommended for plated work and small lacquered parts.

60. Soluble Precious Metals. Available from Technic, Inc., Providence 1, Rhode Island, is a price list and specific data on soluble precious metals for electroplating.

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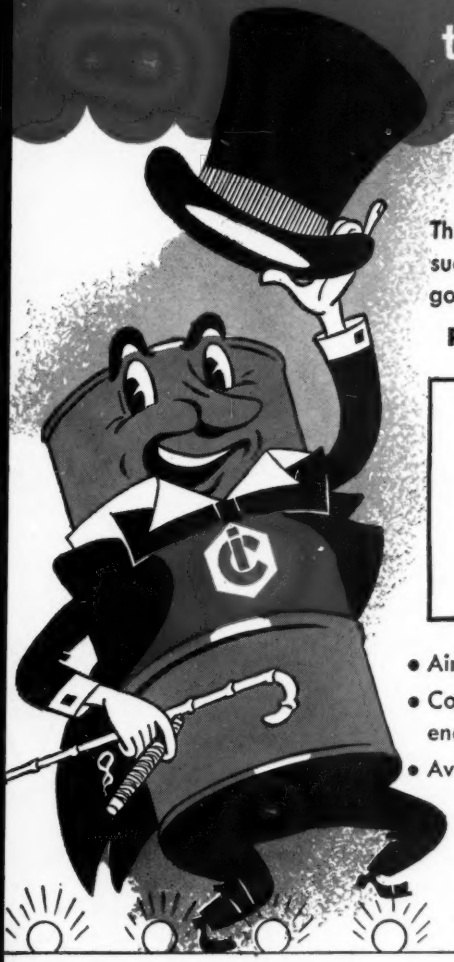

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